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RECENT MOLLUSCA OF THE GULF OF MEXICO AND
PLEISTOCENE AND PLIOCENE SPECIES FROM
THE GULF STATES

Part 2

Scaphopoda, Gastropoda, Amphineura, Cephalopoda

BY

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CLASS SCAPHOPODA

ORDER SOLENOCONCHA

Genus **DENTALIUM** Linnæus

laqueatum Verrill, Trans. Conn., Acad. Arts Sci., vol. 6. pt. 2, p. 431, pl. 44, f. 18, 1885; Dall, Bull. Mus. Comp. Zool., 18, pt. 2, p. 426, pl. 27, f. 1, 1889; Bull, 37, U. S. Nat. Mus., p. 76, pl. 27, f. 1; pl. 46, f. 18, 1889; Pilsbry and Sharp, Tryon's Man. Conch., 17, p. 10, pl. 7, f. 1, 2; pl. 5, f. 73, 1897, Henderson, Bull. 111, U. S. Nat. Mus., p. 23, pl. 1, f. 6, 7, 1920.

Distribution—Hatteras to Barbados, Gulf of Mexico: West Florida and off the Mississippi delta, 60-68 fms.

texasianum Philippi, Zeitschr. Malak, p. 144, 1848; Pilsbry & Sharp, Tryon's Man. Conch., 17, p. 22, 1897; Henderson, Bull. 111, U. S. N. M., p. 28, pl. 1, f. 2, 4, 5, 9, 1920.

sexangulare Hilgard, House of Rep. Ex. Doc. 1, pt. 2, pp. 887, 888, pl. 3, f. 7, 1878. Not of Lamarck.

gouldii Singley, 4th Ann. Rept. Texas Surv., p. 331, 1892; Dall, List Cameron Sh. Not the true *gouldii* of Dall.

Note.—This may be identical with Chenu's *D. americanum* 1843. Closely related to *gouldii* Dall, with which it has been confused.

Distribution.—N. Carolina to Yucatan, 3-9 fms. Gulf coast: Point au Fer and Cameron, La.; Galveston, Corpus Christi and Pass Cabello, Tex. Pleistocene, Lake Borgne borings, La.

texasianum cestum Henderson, Bull, 111, U. S. N. M., p. 29, pl. 2, f. 1, 4, 8, 1920.

Distribution.—Pass Cabello, Texas. Probably in very shallow water.

rebeccaensis Henderson, Bull. 111, U. S. N. M. pp. 16, 31, pl. 3, f. 2, 1920.

Distribution.—West Florida, 7-16 fms. and the Tortugas.

- (*Antalis*) *antillarum* d'Orbigny, In de la Sagra's, Hist. Pol. y Nat. Isla de Cuba, 2, p. 202, pl. 25, f. 10-13, 1846; Pilsbry & Sharp, Tryon's Man. Conch., 17, p. 57, pl. 14, f. 22-25, 1897; Henderson, Bull. 111, U. S. N. M., p. 44, pl. 5, f. 1-4, 6-8, 1920.

Note.—Confined to shallow water. Deep water citations are referable to different species.

Distribution.—Florida to Barbados. Gulf Coast: Charlotte Harbor and other stations off West Florida, 2-14 fms.

- (*Antalis*) *pseudohexagonum* Ihering. See Henderson Bull. 111, U. S. N. M., p. 46, pl. 6, f. 1-3, 1920.

Distribution.—Florida to Brazil. Gulf coast: Marco, Tampa and Charlotte Harbor, West Florida, 2-5 fms.

- (*Antalis*) *disparile* d'Orbigny, Hist. Pol. y Nat. Isla de Cuba, 2, p. 202, pl. 25, f. 14-17, 1846; (?) Vanatta, Proc. Acad. N. S. Phila., 55, p. 757, 1903; Henderson, Bull. 111, U. S. N. M., p. 47, pl. 6, f. 4-8, 1920.

Note.—Frequently confused with *D. antillarum* by authors although really closer to *texasianum*.

Distribution.—Florida to Rio de Janeiro, Brazil. Gulf coast; Tampa, Fla. Littoral zone.

- (*Antalis*) *ceratum* Dall, Bull. Mus. Comp. Zool., 9, p. 38, 1881; *Idem*, 18, p. 424, pl. 26, f. 5, pl. 27, f. 2, 1889; Bull. 37, U. S. N. M., p. 76, pl. 26, f. 5, 1889; Henderson, Bull. 111, U. S. N. M. pp. 49-51, pl. 7, f. 2-7, 1920.

Distribution.—Florida to Barbados. Gulf of Mexico: Off Mississippi delta, 321 fms.; Yucatan Banks, 84 fms.

- (*Antalis*) *taphrium* Dall, Bull. M. C. Z., 18, p. 422, 1889; U. S. N. M., p. 76, 1889; Pilsbry & Sharp, Tryon's Man. 17, p. 58, 1897; Henderson, Bull. 111, U. S. N. M., p. 53, pl. 7, f. 8 1920.

Distribution—Hatteras to Cuba, 22-182 fms. Type dredged between Mississippi delta and Cedar Keys in 30 fms.

(*Antalis*) *bartletti* Henderson, Bull. 111, U. S. N. M., p. 55, pl. 8, f. 2, 7, 1920.

antillarum Dall, Bull. M. C. Z., 9, p. 37, 1881; Bull. 37, U. S. N. M., p. 76 (*pars*), 1889. Not *antillarum* d'Orbigny, 1846.

Note.—True *antillarum* is semi-littoral while *bartletti* is in deeper, colder waters.

Distribution.—Florida to Martinique. Gulf of Mexico: Between Mississippi delta and Cedar Keys, 227 fms.; Yucatan Banks, 399 fms.

(*Heteroschisma*) *callithrix* Dall, Bull. M. C. Z., 18, p. 427, pl. 27, f. 10, 1889; Bull. 37, U. S. N. M., p. 76, pl. 27, f. 10, 1889; Pilsbry & Sharp, Tryon's Man. Conch. 17, p. 62, pl. 7, f. 3, 1897; Henderson, Bull. 111, U. S. N. M., p. 57, pl. 8, f. 3, 4, 6, 1920.

Distribution—North Carolina to off Rio de la Plata, Argentina. Gulf of Mexico: Between Mississippi delta and Cedar Keys, 1181 fms.; Yucatan Strait, 640 fms. (type locality).

(*Fissidentalium*) *meridionale* Pilsbry and Sharp, Tryon's Man. Conch., 17, p. 73, pl. 15, f. 32-34, 1897, (as variety of *candidum*); Henderson, Bull. 111, U. S. N. M., p. 61, pl. 9, f. 2, 1920.

ceras Dall, Bull. M. C. Z. 9, p. 37, 1881; 18, p. 425, 1889; Proc. U. S. N. M. 12, p. 294, 1889. Not *ceras* Watson.

Distribution—Type dredged by the Albatross, 240 miles southeast of Rio de Janeiro, 671 fms., 37° temperature bottom. Also found Yucatan Banks, 1568 fms. and off Barbados. The largest *Dentalium* of the western Atlantic and characterized by its unique, ashen color.

(**Graptacme**) **eboreum** Conrad, Proc. Acad. N. S. Phila., 3, p. 27, 1846; Pilsbry and Sharp, Tryon's Man. Conch., 17, p. 89, pl. 16, f. 47-49, 55, 56, 1897; Henderson, Bull. 111, U. S. N. M., p. 66, pl. 10, f. 3-5, 8, 9, pl. 11, f. 6, 1920.

leptum Bush, Trans. Conn. Acad. Arts and Sci., ser. 1, 6, p. 470, pl. 45, f. 18, 18a, 1885; Dall, Bull. 37, U. S. N. M., p. 76, 1889.

matara Dall, Bull. M. C. Z., 18, p. 420, 1889; Bull. 37, U. S. N. M., p. 76, 1889.

Distribution.—Hatteras to Barbados. Gulf coast: Sarasota Pass (type locality), Charlotte Harbor, Fla. and between Mississippi delta and Cedar Keys. Beach to 111 fms.

Note.—Mr. Henderson unites *matara* and *leptum* with *eboreum*, noting that *matara* is the perfectly smooth adult form of the species.

(**Graptacme**) **semistriolatum** Guilding, Trans. Linn. Soc. London, 17, pt. 1, p. 34, pl. 3, f. 1-5, 1834; Chenu, Conch. Ill., p. 7, pl. 4, f. 14, 15, 1843; Henderson, Bull. 111, U. S. N. M., p. 69, pl. 11, f. 1-5, 8, 9, 1920.

Distribution.—An abundant littoral species. Florida to Barbados. Gulf coast; West Florida in shallow water, 7-12 fms.

(**Graptacme**) **sericatum** Dall, Bull. M. C. Z., 9, p. 37, 1881; 18, p. 423, pl. 26, f. 1, 1889; Bull. 37, U. S. N. M., p. 76, pl. 26, f. 1, 1889. Henderson, Bull. 111, U. S. N. M., p. 71, pl. 12, f. 1, 6, 1920.

Distribution.—Type only found. Dredged by the *Blake*, 640 fms., Yucatan Banks.

(**Laevidentalium**) **callipeplum** Dall, Bull. M. C. Z., 18, p. 419, pl. 27, f. 12 b, 1889; Bull. 37, U. S. N. M., p. 76, pl. 27 f. 12 b, 1889; Trans. Wagner Inst. Sci., 3, p. 442, 1892; Pilsbry and Sharp, Tryon's Man. Conch., 17, p. 100, pl. 19,

f. 9, 1897; Henderson, Bull. 111, U. S. N. M., p. 74, pl. 12, f. 5, 1920.

Distribution.—Florida to Porto Rico. Gulf of Mexico, dredged to 169 fms. between Mississippi delta and Cedar Keys, (type locality).

(*Laevidentalium*) *perlongum* Dall, Bull., M. C. Z., 5, p. 61, 1878, (*nomen nudum*); 9, p. 36, 1881; 18, p. 419, pl. 27, f. 6, 1889; Bull. 37, U. S. N. M., p. 76, pl. 27, f. 6, 1889; Henderson, Bull. 111, U. S. N. M., p. 75, pl. 9, f. 1, 1920.

Distribution.—Hatteras to Rio de la Plata, 11—1330 fms. Gulf of Mexico between Mississippi delta and Cedar Keys at 940 and 1181 fms. also elsewhere in the Gulf at 1330 fms.

(*Episiphon*) *sowerbyi* Guilding, Trans. Linn. Soc. London, 17 p. 35, pl. 3, f. 7, 1834; Pilsbry and Sharp, 'Tryon's Man.' Conch. 17, p. 117, pl. 20, f. 30, 1897; Henderson, Bull. 111, U. S. N. M., pp. 77-80, pl. 13, f. 2, 3, 10, 1920.

filum Dall, Bull. 37, U. S. N. M., p. 76, 1889. Probably not *filum* of Sowerby, 1860, which was from the east Atlantic.

Distribution.—Hatteras to Barbados. Gulf of Mexico: Off Mobile, Ala., 27 fms.; between Mississippi delta and Cedar Keys, 60 fms.

sowerbyi pelliceri Henderson, Bull. 111, U. S. N. M., p. 80, pl. 13, f. 7, 8, 9, 1920.

Distribution.—Florida to Cuba, Cape Catouche, Yucatan, 25 fms.

(*Bathoxiphus*) *ensiculus* Jeffreys, Ann. and Mag. Nat. Hist. ser. 4, 19, p. 154, 1877; Proc. Zool. Soc., p. 660, pl. 49, f. 4, 1882. Watson, Challenger Rept., (Scaphopoda), p. 12, pl. 2, f. 2, 1885; Dall, Bull. 37, U. S. N. M., p. 76, 1889; Henderson, Bull. 111, U. S. N. M., p. 81, pl. 14, f. 1, 4, 5, 7, 9, 1920.

Distribution.—East and West Atlantic. A deep water species of wide range. Gulf of Mexico: Yucatan Strait, 640 fms.

(*Bathoxiphus*) *didymum* Watson, Jour. Linn. Soc. London, 14, p. 517, 1879; Henderson, Bull. 111, U. S. N. M., p. 83, pl. 14, f. 10, 1920.

Distribution.—Culebra Isl. and Barbados. Doubtful specimen, Yucatan Banks, 25 fms.

(*Compressidens*) *pressum* Pilsbry and Sharp, Tryon's Man. Conch. 17, p. 124, pl. 7, f. 11; pl. 22, f. 50-52, 1897; Henderson, Bull. 111, U. S. N. M., p. 83, pl. 14, f. 3, 6, 8, 1920.

compressum Watson, Jour. Linn. Soc. London, 14, p. 516, 1879; Dall, Bull. M. C. Z., 9, p. 38, 1881; Watson, Chall. Rept. (Scaph.), p. 9, pl. 1, f. 9, 1885; Dall, Bull. 37, U. S. N. M., p. 76, 1889. Not *compressum* of d'Orbigny, 1850.

Distribution.—Florida to the Antilles. Gulf of Mexico: Off Cedar Keys, 196 fms.; between Mississippi delta and Cedar Keys, Fla.

(*Compressidens*) *ophiodon* Dall, Bull. M. C. Z., 9, p. 38, 1881; 18, p. 427, pl. 26, f. 9, 1889; Bull. 37, U. S. N. M., p. 76, pl. 26, f. 9, 1889; Henderson, Bull. 111, U. S. N. M., 84, pl. 14, f. 2, 1920.

Distribution.—Florida to Barbados. Gulf of Mexico: West Florida, 169 fms.

quadrangulare Harris, Bull. Amer. Paleontology, vol. 1, p. 95, 1895. Upper Miocene, Galveston well at 2465-2871 feet (Harris).

tetragonum Sowerby, Thesaurus Conch., 3, p. 103, pl. 224, f. 21, 22, 1860. Upper Miocene, Galveston well, at 2158-2920 feet (Harris).

Remark.—A fragment of an undetermined, Pleistocene, *Dentalium* was obtained from Knapp's No. 2 well, Terrebonne Parish, La. at 1190-1430 feet.

Genus **CADULUS** Philippi

(**Polyschides**) *quadridentatus* Dall, Bull. M. C. Z. 9, p. 36, 1881; 18, p. 428, pl. 27, f. 5, 1889; Bull. 37, U. S. N. M., p. 76, pl. 27, f. 5, 1889; Henderson, Bull. 111, U. S. N. M., pp. 97-100, pl. 17, f. 2, 3, 1920.

incisus Bush, Tr. Conn. Acad., 6, p. 471, pl. 45, f. 20, 1885; Dall, Bull. 37, U. S. N. M., p. 76, pl. 41, f. 20, 1889.

Distribution.—Hatteras to Rio de la Plata, 3-52 fms. Gulf of Mexico: West Florida, 10-25 fms.; Yucatan Banks 25 fms.

(**Polyschides**) *carolinensis* Bush. In Verrill, Rept. Fish Com. (for 1883), p. 587, 1885; Tr. Conn. Acad., 6, p. 471, pl. 45, f. 19, 1885; Dall, Bull. 37, U. S. N. M., p. 48 (*pars*), pl. 41, f. 19, 1889; Pilsbry and Sharp, Tryon's Man. Conch., 17, p. 152, pl. 25, f. 64, pl. 30, f. 241-127, 1898; Henderson, Bull. 111, U. S. N. M., p. 102, pl. 17, f. 6, 7, 1920.

Distribution.—Hatteras to Key West, 3-87 fms. Gulf of Mexico, off Mobile, in 27 fms.

(**Platyschides**) *poculum* Dall, Bull., M. C. Z., 18, p. 429, 1889; Bull. 37, U. S. N. M., p. 76, 1889; Pilsbry and Sharp, Tryon's Man. Conch., 17, p. 172, pl. 33, f. 56, 57, 1898; Henderson, Bull. 111, U. S. N. M., p. 108, pl. 17, f. 8, 1920.

Distribution.—Type found off St. Vincent, W. I., 424 fms. Also dredged, 640 fms., Yucatan Banks.

(**Platyschides**) *parvus* Henderson, Bull. 111, U. S. N. M., p. 113, pl. 18, f. 2, 4, 1920.

amiantus Dall, Bull. 37, U. S. N. M., p. 78, 1889. Not Dall's typical *amiantus*.

Distribution.—Off Barbados, 100 fms. (type); Yucatan Banks, 1002 fms.

(**Platyschides**) *elongatus* Henderson, Bull. 111, U. S. N. M., p. 122, pl. 19, f. 15, 1920.

Distribution.—Gulf of Mexico, off the mouth of the Mississippi River, 68 fms.

(**Platyschides**) **arctus** Henderson, Bull. III, U. S. N. M., p. 124, pl. 19, f. 19, 1920.

Distribution.—Gulf of Mexico off Cape San Blas, Florida, 60 fms.

(**Gadila**) **mayori** Henderson, Bull. III, U. S. N. M., p. 133, pl. 19, f. 3, 1920.

Distribution.—Florida, Gulf of Mexico, off Cape San Blas, Fla., 60 fms.

(**Cadulus**) **transitorius** Henderson, Bull. III, p. 143, pl. 19, f. 6, 1920.

Distribution.—Florida to Old Providence Isl., north of Colon. Gulf of Mexico, off Cape San Blas, Fla., 196 and 169 fms.

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CLASS GASTROPODA

ORDER PTEROPODA

Genus **CAVOLINA** Abildgaard

inflexa Lesueur Nouv. Bull. Soc. Philom., 3, p. 285, pl. 5, f. 3, 1813, (as *Hyalæa*); Dall, Bull. U. S. Nat. Mus., 37, p. 82, 1889; Proc. U. S. Nat. Mus., 37, p. 197, 1910.

Distribution.—West Atlantic, Lat. 42°N.—42° S., East Pacific, Lat. 13° N.—42° S. Gulf of Mexico, West Florida. Pelagic. Pleistocene to Recent.

uncinata Rang, in d'Orbigny's, Voy. Amér Me'r., p. 93, pl. 5, f. 11-13, 1836, (as *Hyalæa*); Dall Bull. 37, U. S. N. Mus., p. 82, pl. 66, f. 116, 1889; Proc. U. S. N. Mus. 37, p. 198, 1910; Johnson, Occ. Papers, Boston Soc. Nat. Hist., 7, p. 156, 1915.

Distribution.—West Atlantic, Lat. 40°N.—40°S. East Pacific, Lower California to Ecuador and Galapagos Isls. Gulf of Mexico; West Florida. Pelagic. Pleistocene to Recent.

(**Diacria**) **trispinosa** Lesueur, in Blainville; Dict. des Sciences Nat. 22, p. 82, 1821, (as *Hyalæa*); Gould, Inv. Mass., p. 504, 1870, (as *Diacria*); Dall, Bull. 37, p. 82, pl. 66, f. 115, 1889; Sumner, Bull. Bur. Fish., 31, pt. 2, p. 703, 1913. Johnson, Occ. Pap. Bost. Soc., 7, p. 157, 1915.

Distribution.—West Atlantic, Lat. 60°N.—40° S. Gulf of Mexico, West Florida. Pelagic. Pleistocene to Recent.

Genus **CLIO** Linnæus

pyramidata Linnæus, Systema Naturæ, 12th ed., p. 1094, 1767; Dall, Bull. 37, U. S. N. M., p. 80, 1889, (as *Cleodora*); Proc. U. S. N. M., 37, p. 198, 1910; Johnson, Occ. Pap. Bost. Soc., 7, p. 158, 1915.

Cleodora lanceolata Souleyet, Zool. Bonite, 2, p. 179, pl. 6, f. 17-25, 1852.

Distribution.—Atlantic, Spitzbergen to Lat. 40° S. South-

eastern Pacific, Lat. 27° S. Gulf of Mexico, West Florida and Texas. Pelagic. Pleistocene to Recent.

recurva Children, Jour. Roy. Inst., 15, p. 220, pl. 7, f. 107, 1829, (as *Balantium*); Dall, Bull. 37, p. 82, 1889; Johnson, Occ. Pap. Bost. Soc., 7, p. 158, 1915.

Distribution.—Lat. 40° N.— 33° S. Gulf of Mexico, West Florida. Pleistocene to Recent.

Genus **CRESEIS** (Rang) Sowerby

subula Quoy and Gaimard, Ann. des Sci. Nat., ser. 1, 10, p. 233, pl. 8 D, f. 2-3, 1827, (as *Cleodora*); Dall, Bull. 37, p. 80, 1889; Dall and Simpson, Bull. U. S. Fish Com. for 1900, 1, p. 360, pl. 57, f. 1, 1901; Dall, Proc. U. S. N. M., 37, p. 198, 1910; Johnson, Occ. Pap. Bost. Soc., 7, p. 158, 1915, (as *Styliola*); Dall, Bull. 112, U. S. Nat. Mus., p. 59, 1921.

Distribution.—Atlantic, Lat. 41° N.— 40° S. Type locality, Teneriffe. Pacific, Peruvian. Gulf of Mexico, West Florida and Texas. Pelagic. Pleistocene to Recent.

Genus **STYLIOLA** (Lesueur) Gray

virgula Rang, Ann. Sci. Nat., ser. 1, 13, p. 316, f. 2, 1828, (as *Creseis*); Verrill, Trans. Conn. Acad., 5, p. 557, 1882, (as *Styliola*); Dall, Bull. 37, U. S. N. Mus., p. 80, '89, (as *Creseis*); Proc. U. S. N. M., 37, p. 198, 1910 (as *Styliola*); Johnson, Occ. Pap. Bost. Soc., 7, p. 157, 1915, (as *Creseis*).

Distribution.—Atlantic, Lat. 41° N. - 35° S. Pacific, off Juan Fernandez Isl. Gulf of Mexico, West Florida, Pelagic. Pleistocene to Recent.

Genus **VAGINELLA** Daudin

chipolana Dall, Trans. Wagner Inst. Sci., 3, pt. 2, p. 431, pl. 23, f. 4, 5, 1892.

Lower Miocene, Chipola beds, Bailey's Ferry, Calhoun Co., Florida. An ancient, Cretaceous to Recent, genus.

Genus **CUVIERINA** Boas

columnella Rang, Ann. des Sci. Nat., ser. 1, v. 12, p. 323, 1827, Atlas 4°, pl. 45 B, f. 1-8. (as *Cuvieria*); Pelseneer, Challenger Pteropoda, Zool., 23, art. 1, p. 67, 1888; Dall, Bull. 37, U. S. N. Mus., p. 82, pl. 66, f. 117, '89; Tr. Wagner Inst. Sci., 3, pt. 2, p. 431, 1892; Peck, Proc. U. S. N. Mus., 16, p. 462, pl. 55, f. 16, 1893; Dall, Proc. U. S. N. M., 37, p. 198, 1910; Johnson, Occ. Pap. Bost. Soc., 7, p. 159, 1915.

Triptera columnella Verrill, Trans. Conn. Acad., 5, p. 557, 1882; 6, p. 214, 1884.

Distribution.—West Atlantic, Lat. 43° N.—40° S. East Pacific, Lat. 23° N.—42° S. Gulf of Mexico, West Florida and Texas, recent. Lower Miocene Chipola bed at Alum Bluff, Calhoun Co. Florida.

Note.—The specific name is often, but erroneously, written *columella*. The correct form is *columnella* since Rang prints it thus twice in the original description. The generic name *Cuvieria* is preoccupied.

Genus **EMBOLUS** Jeffreys

inflatus d'Orbigny, Voy. Ame'r. Me'r., p. 174, pl. 12, f. 16-19, 1836, (as *Atlanta*); Dall, Bull. 37, U. S. N. Mus., p. 80, 1889; Proc. U. S. N. Mus., 37, p. 199, 1910; Johnson, Occ. Pap. Bost. Soc., 7, p. 155, 1915, (as *Limacina*).

Spirialis rostralis Verrill, Trans. Conn. Acad., 6, p. 431, 1885.

Distribution.—West Atlantic, Lat. 42° N.—40° S. East Pacific. Lat. 42° N.—40° S. Gulf of Mexico, West Florida. Pelagic, Pleistocene to Recent.

Genus **PERACLE** Forbes

reticulata d'Orbigny, Voy. Ame'r. Me'r., p. 178, pl. 12, f. 32-35, 39, 1836, (as *Atlanta*); Dall, Bull. 37, U. S. N. Mus., p. 80, 1889; Proc. U. S. N. Mus., 37, p. 199, 1910.

Distribution.—West Atlantic, Lat. 37° N.— 9° S. East Pacific, Lat. 20° S. Mediterranean. Gulf of Mexico, West Florida. Pelagic. Pleistocene to Recent.

ORDER OPISTHOBRANCHIATA

Genus **ACTAEON** Montfort

punctostriatus C. B. Adams, Jour. Bost. Soc. Nat. Hist., 3, p. 323, pl. 3, f. 9, 1840, (as *Tornatella*); Dall, Bull. 37, U. S. N. Mus., p. 84, pl. 41, f. 17, pl. 52, f. 22, '89; Tr. Wagner Inst. Sci., 3, p. 14, '90; Singley, 4th Ann Rept. Geol. Surv. Texas, p. 332, '92; Pilsbry, Tryon's Man. Conch. ser. 1, 15, p. 157, pl. 18, f. 98, 99, pl. 19, f. 22, 23, '93; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 362, 1901; Johnson, Occ. Papers, Bost. Soc. N. H., 7, p. 147, 1915.

punctatus d'Orbigny, In La Sagra, Hist. Pol. y Nat. Isla de Cuba, 1, p. 230, Atlas, pl. 17, f. 10-12, 1842; (as *Tornatella*); Dall, Proc. U. S. N. M., 6, p. 324, 1883. Not *T. punctata* Ferussac, 1823. Not of Lea, 1833. Not of Piette, 1855.

cubensis Gabb, Tr. Amer. Phil. Soc., 15, p. 245, 1873.

Note.—The recent Cuban *Actæon punctatus* d'Orbigny (preoccupied, renamed *cubensis* by Gabb) is now considered identical with the northern *punctostriatus*. *Actæon punctatus* Lea (Contr. Geol, p. 111, pl. 4, f. 96) is Claiborne Eocene, Ala.; and, *vide* Dall, Pliocene; Caloosahatchie beds, Fla. Not Recent.

Distribution.—Cape Cod to the Antilles, 2-63 fms. Miocene (of Shiloh, New Jersey) to Recent. Gulf coast: Cedar Keys, Fla., Corpus Christi Bay, Tex. Pliocene, Caloosahatchie beds, Fla.

exilis Jeffreys, Ann. & Mag. Nat. Hist., 4th, ser., 6, p. 85, 1870; Watson, Chall. Rept. Gastr., p. 624, '86; Dall, Bull. M. C. Z. Harv. Coll., 18, p. 39, '89; Bull. 37, U. S. N. M., p. 84,

'89; Pilsbry, Man. Conch., 1 ser., 15, p. 156, pl. 19, f. 4-6, '93.

Auriculina insculpta Verrill; Proc. U. S. N. M., 3, p. 381, 1880.

nitidus Verrill, Tr. Conn. Acad., 5, p. 540, pl. 58, f. 21, 1882.

Distribution.—West Atlantic, Martha's Vineyard, Mass. to Florida. Also Mediterranean and Bay of Biscay. 92-1465 fms. Gulf of Mexico, Campeche Bank, at 200 fms. Pliocene to Recent.

pusillus Forbes, Rept. Brit. Assoc. Adv. Sci., p. 191, 1843, (as *Tornatella*); Jeffreys, Ann. & Mag. N. H., 4th ser., 6, p. 84, 5th ser. 10, p. 34; Watson, Chall. Rept. Gastr. p. 627; Dall, Bull. 37, U. S. N. M., p. 84, 1889; Pilsbry, Man. Conch., 1 ser., 15, p. 156, 1893.

An unfigured species.

Distribution.—Mediterranean, Madeira; West Indies. 20-450 fms. Gulf of Mexico, off Sand Key, West Florida, at 111 fms.

perforatus Dall, Bull. M. C. Z., 9, p. 96, 1881; 18, p. 42, pl. 18, f. 3, 89; Bull. 37, U. S. N. M., p. 84, pl. 18, f. 3, '89; Pilsbry, Man. Conch., 1 ser., 15, p. 159, pl. 20, f. 36, 1893.

Distribution.—Gulf of Mexico, 805 fms.

incisus Dall, M. C. Z., 9, p. 95, 1881; 18, p. 42, pl. 17, f. 1, 1 b, '89; Bull. 37, U. S. N. M., p. 84, pl. 17, f. 1, 1 b, '89; Pilsbry, Man. Conch., 1 ser., 15, p. 161, '93.

Distribution.—Yucatan Strait, off Cape San Antonio, 640 fms. Also off Fernandina, N. E. Fla., 294 fms.

delicatus Dall, Bull. M. C. Z., 18, p. 41, pl. 17, f. 5, 1889; Proc. U. S. N. M., 12, p. 296, '89; Bull. 37, U. S. N. M., p. 84, pl. 17, f. 5, '89; Pilsbry, Man. Conch., ser. 1, 15, p. 162, pl. 20, f. 35, '93.

Distribution.—Gulf of Mexico, West Florida, region. Also Barbabos 73-400 fms.

galvestonensis Harris, Bull. Amer. Pal., vol. 1, p. 96, pl. 3, f. 1, 1895.

Distribution—Upper Miocene, Galveston well at 2552-2871 feet.

Genus **RNIGICULA** Deshayes

nitida Verrill, Am. Jour. Sci., 3, ser., 5, p. 16, 1873; Tr. Conn. Acad., 3, p. 48, pl. 1, f. 2, '74; Dall, Bull. M. C. Z., 18, p. 43, '89; Bull. 37, p. 84, pl. 37, f. 3, '89; Pilsbry, Man. Conch., 1 ser., 15, p. 399, pl. 46, f. 38, '93; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 151, 1915.

leptocheila Brugnone, Misc. Mal., p. 11, pl. 1, f. 17, 1873; Morelet, Jour. de Conch., pp. 131, 285, pl. 5, f. 17, '78; Agassiz, Three Cruises of the Blake, 2, p. 70, f. 291, 1888.

Distribution.—Massachusetts to Pernambuco, Brazil. Also Pliocene of Italy (Brugnone) and recent in the Mediterranean. 19-1075 fms. Gulf of Mexico, Yucatan Strait, 640 fms.

Genus **ACTEOCINA** Gray

bullata Kiener, Sp. et Icon. Coq. Viv., p. 5, pl. 1, f. 4, (as *Tornatella*); Dall, Bull. 37, U. S. N. M., p. 84, 1889; Pilsbry, Man. Conch., 1 ser., 15, p. 183, pl. 50, f. 30, pl. 22, f. 17-19, '93; Harris, Bull. Am. Pal. vol. 1, p. 96, '95; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 362, pl. 57, f. 9, 1901.

Bulla canaliculata d'Orbigny, Hist. Pol. y. Nat. Isla de Cuba, 1, p. 133, pl. 3 bis., f. 21-24. Not of Say.

Tornatina olivula A. Adams, Thes. Conch., 2, p. 569, pl. 121, f. 34.

Distribution.—Florida Strait to Trinidad Island. Upper Miocene, Galveston well at 2410-2425 ft. (Harris).

recta d'Orbigny, In Sagra's Hist. Pol. y. Nat. Isla de Cuba, 1, p. 131, pl. 4, bis. f. 17-20, (as *Bulla*); Dall, Bull. 37, U. S.

N. M., p. 84, 1889; Pilsbry, *Man. Conch.*, 1 ser., 15, p. 184, pl. 22, f. 13-15, '93, (as *Tornatina*); Maury, *Bull. Amer. Pal.*, No. 29, p. 14, pl. 3, f. 3, 1917.

Distribution.—Florida Keys, Antilles and St. Helena. Gulf coast, Tampa. Also Lower Miocene Santo Domingo and Jamaica. A closely related, Older Pliocene, species is *Acteocina wetherilli* Lea, from Deal, N. J. and the Orbitolite bed, Tampa, Fla.

canaliculata Say. *Jour. Acad. Nat. Sci. Phila.*, 5, p. 211, 1822, (as *Volvaria*); Holmes, *Post. Pl. Foss. S. Car.*, p. 78, pl. 12, f. 11, 11a; Gould, Binney' ed., p. 219, f. 510, 1870, (as *Utriculus*); Dall, *Proc. U. S. N. M.*, 6, p. 324, '83; *Bull.* 37, U. S. N. M., p. 84, pl. 52, f. 27, '89, (as *Tornatina*); Singley, 4th Ann. Rept. Geol. Tex., p. 332, '92; Pilsbry, *Man. Conch.*, 1 ser., 15, p. 184, pl. 22, f. 23, pl. 50, f. 25, 26, '93; Johnson, *Occ. Pap. Bost. Soc. N. H.*, 7, p. 147, 1915; Maury, *Bull. Am. Pal.*, No. 29, p. 13, pl. 3, f. 2, 1917.

obstricta Gould, *Silliman's Jour. Sci.* 38, p. 196, 1840, (as *Bulla*); Adams. *Thes.*, 2, p. 566, t. 121, f. 29, (as *Tornatina*).

Distribution.—Portland, Maine to Haiti, 0-63 fms. Lower Miocene (Santo Domingo) to Recent. Gulf coast.—Recent: Cameron and Point au Fer, La., (very abundant); Galveston and Corpus Christi, Tex. Pleistocene: North Creek, Manatee and Labelle, Fla.; Grand Chenier, La, Knapp's wells, Terrebonne Parish, No. 2 at 1050-1790 ft., No. 3 at 258-1525 ft. Pliocene; Caloosahatchie River, Fla. Miocene; Gilbert well No. 10, Bateson, Tex., 323 ft.

candei d'Orbigny, *Moll. Cuba*, 1, p. 128, pl. 4, f. 1-4, (as *Bulla*); Dall, *Bull.* 37, U. S. N. M., p. 84, pl. 41, f. 13, 1889; Vanatta, *Pr. A. N. S. Phila.*, 55, p. 757, 1903.

Distribution.—Hatteras to Martinique, 0-48 fms. Gulf

coast, St. Joseph's Bay and Crooked Isl., West Fla.

Genus **RETUSA** Brown

frielei Dall, Bull. M. C. Z., 9, p. 101, 1881, (as *Utriculus*); 18, p. 47, pl. 17, f. 4, '89; Bull. 37, U. S. N. M., p. 86, pl. 17, f. 4, '89; Pilsbry, Man. Conch., 1 ser., 15, p. 219, pl. 21, f. 8, 1893.

Note.—I follow Cossmann in placing *Utriculus* Brown, 1827 (not of Schumacher, 1817) in the synonymy of *Retusa*.

Distribution.—Yucatan Strait, 640 fms.

Genus **SCAPHANDER** Montfort

punctostriatus Mighels, Pr. Bost. Soc. N. H., 1, p. 49, 1841, (as *Bulla*); Dall, Bull. 37, U. S. N. M., p. 86, pl. 72, f. 4, '89; Pilsbry, Man. Conch., 1 ser., 15, p. 246, pl. 31 f. 16, '93; Johnson, Occ. Pa. Bost. S. N. H., 7, p. 149, 1915.

librarius Love'n, Index Moll. Scand., p. 10, 1846.

Distribution.—Iceland & Norway to Bay of Biscay. Maine to Barbados, 46-1467 fms. Gulf of Mexico, Lat. 28° N., Lon. 88° W., 533 fms. Inhabits shallow water in its northern habitats.

watsoni Dall, Bull. M. C. Z., 9, p. 99, 1881; 18, p. 52, pl. 17, f. 10, '89; Bull. 37, U. S. N. M., p. 86, pl. 17, f. 10, '89.

Distribution.—Hatteras to Barbados, 54-324 fms. Gulf of Mexico, West Fla. region, dredged U. S. Fish Com., bottom temperature 46° F.

nobilis Verrill, Tr. Conn. Acad. Sci., 6, p. 209, pl. 32, f. 18; Dall, Bull. M. C. Z., 18, p. 53, 1889; Pilsbry, Man. Conch., 1 ser., 15, p. 249; '93.

Distribution.—Martha's Vineyard 906-1309 fms., Delaware Bay 1091-1209 fms., Tobago 880 fms., Gulf of Mexico, U. S. Fish Com. Station 2127, at 1639 fms.

Genus **SABATIA** Bellardi

bathymophila Dall, Bull. M. C. Z., 9, p. 98, 1881, (as *Alys?*); 18, p. 53, pl. 17, f. 9, 9b, '89; Bull. 37, U. S. N. M., p. 86, pl. 17, f. 9, 9b, '89.

Distribution.—Fernandina to Guadeloupe, 294-1568 fms. Gulf of Mexico, Yucatan Strait, 740 fms.

Genus **CYLICHNELLA** Gabb

bidentata d'Orbigny, Moll. Cuba 1, p. 125, pl. 4, f. 13-16, 1841, (as *Bulla*); Gabb, Pr. A. N. S. Phila., 24, p. 273, pl. 10, f. 2, '72; Dall, Bull. 37, U. S. N. M., p. 86, pl. 41, f. 14, '89; Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903.

Bulla biplicata Lea. Pr. Bost, Soc. N. H., 1, p. 204, 1844.

Distribution.—Hatteras to Barbados, 7-168 fms. Pliocene to Recent. Gulf coast, Recent: West Florida and Texas. Pleistocene, Louisiana, Knapp's No. 2 ²/₄ well, Terrebonne Parish, 1519-1542 ft., Crowley No. 4 well, Jennings, 1663-1670 feet.

bidentata var. *galvestonensis* Harris, Bull. Am. Pal., vol. 1, p. 96, pl. 3, f. 2, 1895.

Distribution.—Upper Miocene, Galveston well at 2600-2733 feet.

Genus **BULLARIA** Rafinesque

striata Bruguiere, Ency. Meth., 1, p. 572, (as *Bulla*); Dall, Bull. 37, U. S. N. M., p. 88, 1889; Pilsbry, Man. Conch., 1, ser., 15, p. 332, pl. 37, f. 42-46, '93.

Distribution.—Recent, Mediterranean and Atlantic coasts of Portugal and Morocco. Also living at Clearwater Harbor, West Florida; New Harbor Isls. and Chandeleurs, Louisiana; Texas. Pliocene, Caloosahatchie marls, Fla.

occidentalis A. Adams, In Sowerby's Thes., 2, p. 577, pl. 123, f. 72, 73, 1850, (as *Bulla*); Dall, Pr. U. S. N. M., 6, p. 324, '83, Bull. 37, U. S. N. M., p. 88, '89; Singley; 4th Ann.

Rept. Geol. Surv. Tex., p. 332, '92; Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903.

Distribution.—Florida to St. Vincent, W. I. Gulf coast: Cedar Keys, St. Marks, Tampa, Crooked Isl (Calhoun Co.), Fla.; Corpus Christi and Matagorda Bays, Texas.

solida Gmelin, Syst. Nat., 13, p. 3434, (as *Bulla*); Dall, Bull. 37, U. S. N. M., p. 88, 1889; Pilsbry, Man. Conch., 1 ser. 15, p. 335, pl. 43, f. 1, 2, 1893.

Distribution.—West Indies, Vera Cruz and Maracaibo. Cited from Texas region, Gulf of Mexico (Dall, '89).

abyssicola Dall, Bull. M. C. Z., 9, p. 97, 1881, (as *Bulla*); 18, p. 56, pl. 17, f. 11, '89; Bull. 37, U. S. N. M., p. 88, pl. 17, f. 11, '89; Pilsbry, Man. Conch., 1 ser., 15, p. 338, pl. 36, f. 31, 1893.

pinguicula Jeffreys, Ann. & Mag. N. H., p. 318, 1880, (*nomen nudum*); Watson, Chall. Exp. Gastr., p. 638, 1886.

Distribution.—Bay of Biscay, Azores, Antilles and Yucatan Strait, 450-640 fms.

Genus **HAMINOEA** Turton

elegans Gray, Ann. of Philos. new ser. 9, p. 408; 1825; Index Testac., Suppl., pl. 3, f. 2, (as *Bulla*); Pilsbry, Man. Conch., 1 ser., 15, p. 355, pl. 41, f. 37-39, pl. 40, f. 88, 1893; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 364, 1901.

gouldingi Swainson, Malacol, pp. 251, 360, f. 46, 1840; Adams, Thes., p. 580, pl. 124, f. 87-89; Dall, Bull. 37, U. S. N. M., p. 88, 1889.

Note.—*Fide* Pilsbry, the true *elegans* of Gray is this species and not a European shell.

Distribution.—Antilles to Rio de Janeiro. Gulf coast, West Florida and Texas.

succinea Conrad, Pr. A. N. S. Phila., 3, p. 26, pl. 1, f. 5, 1846, (as *Bulla*); Dall, Pr. U. S. N. M., 6, p. 324, 1883; Bull. 37, U. S. N. M., p. 88, '89; Mitchell, List Tex. Sh.; Pilsbry, Man. Conch., 1 ser., 15, p. 357, pl. 48, f. 18, 1893; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 364, 1901.

Distribution.—Indian River, E. Fla., to Texas. West Florida at Tampa (Conrad's type locality), and Cedar Keys; Chandeleurs, La.

antillarum d'Orbigny, Moll. Cuba 1, p. 124, pl. 4, f. 9-12; Mörch, Mal. Bl., 22, p. 175; Dall, Bull. 37, U. S. N. M., p. 88, 1889; Pilsbry, Man. Conch., 1 ser., 15, p. 358, pl. 41, f. 35, 36, 1893; Mitchell, List Texas Shells.

cerina Menke, Zeitschr. für Mal., p. 142, 1853.

Distribution.—W. Florida to Porto Rico and St. Thomas. Gulf coast at Tampa, Fla., and Espiritu Santo Bay, Texas.

antillarum var. **guadalupensis** Sowerby, Conch. Icon., f. 14, 1868; Pilsbry, Man. Conch., 1 ser., 15, p. 358, pl. 41, f. 30-34, 1893.

Distribution.—Guadeloupe, Cuba &c., Gulf coast at White Water Bay, West Florida.

petiti d'Orbigny, Moll. Cuba 1, p. 130, pl. 4, bis. f. 13-16, (as *Bulla*); Dall, Bull. 37, U. S. N. M., p. 88, 1889; Pilsbry, Man. Conch., 1 ser., 15, p. 359, pl. 41, f. 23, 24, 1893.

Distribution.—St. Thomas, W. I. and Tampa, West Fla.

virescens Sowerby, Genera, No. 39, f. 2; Dall, Tr. W. I. S., 3, p. 18, 1890; Pilsbry, Man. Conch., 1 ser., 15, p. 360, pl. 40, f. 5, pl. 43, f. 19, 1893.

Distribution.—Recent on the Pacific coast, California to Mexico. Pliocene, Caloosahatchie beds, Fla. Not in the recent Atlantic fauna.

Genus **CYLINDROBULLA** Fischer

beaui Fischer, Jour. de Conch., p. 275, pl. 8, f. 8, 9, 1856; Dall,

Bull. 37, U. S. N. M., p. 88, 1889; Pilsbry, Man. Conch., 1 ser., 15, p. 380, pl. 42, f. 19, 20, 1893.

Distribution.—Guadeloupe (type locality), St. Thomas, W. I.; Gulf coast at Cedar Keys, 2-95 fms. This species is the genotype.

Genus **HYDATINA** Schumacher

physis Linnaeus, Syst. Nat., ed. x., p. 727, 1758. (as *Bulla*): Dall, Bull. 37, U. S. N. M., p. 88, 1889; Pilsbry, Man. Conch., ser. 1, 15, p. 387, pl. 45, f. 14-17, 1893; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 364, 1901.

Distribution.—Atlantic, Pacific and Indian Oceans. Gulf coast: Sarasota, West. Fla.

Genus **PHILINE** Ascanius

flexuosa M. Sars, Nyt. Mag. f. naturvidens., 17, p. 181, pl. 11, f. 23-26; Christianiafjordens Fauna, pp. 69, 70, pl. 11, f. 23-26; Dall, Bull. M. C. Z., 18, p. 59, 1889; Bull. 37, U. S. N. M., p. 88, 1889; Pilsbry, Man. Conch., 1 ser., 16, p. 21, pl. 4, f. 86-89, 1896.

Distribution.—Christiania, Norway; Yucatan Strait, 640 fms.

Genus **TETHYS** Linnaeus

protea Rang, Hist. Nat. des Aplysiens, p. 56, pl. 10, f. 1-3, 1828, (as *Aplysia*): d'Orbigny, Moll. Cuba, 1, p. 117; Beau, Cat. Coq. Guadeloupe, p. 20; Dall, Pr. U. S. N. M., p. 324, '83; Pilsbry, Man. Conch., 1 ser. 16, p. 78, pl. 37, f. 20-22, 1895; Dall & Simpson, Bull. U. S. Fish Com. 1, p. 365, 1901.

Distribution.—Florida to Carthagen, Columbia. Very abundant in the Antilles. Gulf of Mexico, West Florida (Dall).

willcoxi Heilprin, Pr. A. N. S. Phila., p. 364, 1886, (as *Aplysia*): Dall, Bull. 37, U. S. N. M., p. 90, '89; Pilsbry, Man.

Conch., 1 ser. 16, p. 80, pl. 35, f. 30-32, 1895; Johnson, Occ. Pap. Bost. Soc. N. H., 7, p. 154, 1915.

Distribution.—Little Gasparilla Bay and Marco West Florida. Also Massachussetts coast.

ORDER PULMONATA

Genus **AURICULA** Lamarck

(*Auriculastrum*) **pellucens**, Menke, Syn. Meth. Moll., p. 131, 1830; Dall, Pr. U. S. N. M., 8, p. 275, pl. 18, f. 8, 1885; Bull. 37, U. S. N. M., p. 90, pl. 47, f. 8, 1889.

Distribution.—Cedar Keys, Florida, to Demerara, British Guiana.

Genus **PEDIPIES** Scopoli

mirabilis Muhlfeld, Mag. Ges. Nat. Freude, Berlin, 8, p. 8, pl. 11, f. 13, a. b. 1818; Dall, Bull. 37, U. S. N. M., p. 92, pl. 47, f. 17, 1889; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 369, pl. 53, f. 8, 1901.

quadridens Pfeiffer, 1839; *ovalis* Adams, 1849, *tridens* Pfeiffer, 1854.

naticoides Stearns, Pr. Bost. S. N. H. 13, p. 108, 1869; Dall, Pr. U. S. N. M., 8, p. 279, pl. 18, f. 17, 1885.

Distribution.—Tampa, Florida, to Guadeloupe Island.

elongatus Dall, Pr. U. S. N. M., 8, p. 279, pl. 18, f. 4, 1885; Bull. 37, U. S. N. M., p. 92, pl. 47, f. 4, 1889.

Distribution.—Marco, Southwest Florida.

Genus **MELAMPUS** Montfort

coffeus Linnæus, Syst. Nat. ed. x, p. 729, 1758, (as *Bulla*); Dall, Bull. 37, U. S. N. M., p. 92, pl. 47, f. 3, 1889; Dall & Simpson, Bull. U. S. Fish Com. 1, p. 368, pl. 53, f. 13, 1901.

coniformis Bruguiere, Ency. Meth. 1, p. 339, (as *Bulimus*).

Auricula ovula d'Orbigny, Moll. Cuba 1, p. 187, Atlas, pl. 13, f. 4-7, 1853.

Distribution.—Florida to French Guiana. Pleistocene to Recent. Gulf coast, Cedar Keys, Fla. and Texas.

coffeus var. **gundlachi** Pfeiffer, Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903.

Distribution.—St. Andrews Bay, Washington Co., Fla.

floridanus Shuttleworth, MSS., Pfeiffer, Mon. Aur. Viv., p. 36, 1856; Dall, Bull. 37, U. S. N. M., p. 92, pl. 47, f. 2, 1889.

Distribution.—Tampa to Florida Keys.

flavus Gmelin, Syst. Nat., p. 3436, 1792, (as *Voluta*); Binney, Jour. Bost. Soc., Nat. Hist., 7, p. 166, 1863; Land & Fr. Water Sh. pt. 2, p. 12, '65; Dall, Pr. U. S. N. M., 8, p. 281, pl. 18, f. 2, '85; Bull. 37, U. S. N. M., p. 92, pl. 47, f. 1, '89; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 368, pl. 54, f. 9, 1901; Mitchell, List Texas Shells.

Voluta flava Gmelin, Syst. Nat. p. 3436, 1792.

Bulimus monile Bruguiere, Ency. Méth., 1, p. 338, 1789.

torosa Moerch, Cat. Yoldi, 38, 1852.

coronatus Adams, 1849; *coronulus* Adams, 1854.

Distribution.—Florida to Guadeloupe. Gulf coast: Tampa, Cedar Keys, Fla.; Point au Fer, La.; Port Lavaca and Espiritu Santo, Tex.

Note.—According to Mr. Mitchell, this species lives near shore, hiding in the day time under drift wood and sea weed and goes in search of food nocturnally.

lineatus Say, Jour. A. N. S. Phila., 1 ser. 2, p. 246, 1822; Dall, Bull. 37, U. S. N. M., p. 92, pl. 47, f. 9, 12, '89; Singley, 4th Ann. Geol. Rept. Texas, p. 352, '92; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 178, 1915.

bidentatus Say, Jour. A. N. S. Phila., 1 ser., 2, p. 245, 1822; DeKay, N. Y., Moll., p. 57, pl. 5, f. 92, 1, 2, 3, 1843;

Binney, Land & Fr. W. Sh., 2, p. 10, '65; Not *bidentatus* Montagu, 1803, which is European, but introduced on New England coast.

biplicatus Pfeiffer, Mon. Auric. Viv., p. 21.

Auricula cornea Deshayes, Ency. Méth., 2, p. 90, 1830; *jaumei* Mittré', 1841.

Distribution.—Maine to Tortola Isl., Gulf coast: Tampa, Cedar Keys, St. Mark's, Fla.; Point au Fer. Chaudaleurs, Belle Isle, La; Galveston, Tex.

Note.—Northern specimens very distinct; southern grade towards *flavus* with which they may hybridize. Inhabits salt marshes.

(*Detracia*) *bulloides* Montagu, Testacea Brit., p. 339, pl. 30, f. 4, 1803, (as *Voluta*); Dall, Pr. U. S. N. M., 8, p. 285, pl. 18, f. 7, 1885; Bull. 37, U. S. N. M., p. 92, pl. 47, f. 7, '89.

Distribution.—Cedar Keys, Fla. and the Antilles. Type of Gray's subgenus *Detracia*.

(*Sayella*) *hemphilli* Dall, Pr. U. S. N. M., 6, p. 323, pl. 10, f. 6, 1883, (as *Leuconia*); Pr. U. S. N. M., 8, p. 286, pl. 18, f. 11, '85; Bull. U. S. N. M., 37, p. 92, pl. 47, f. 11, '89; Singley, 4th Ann. Rept. Tex. Surv. p. 343, '92.

Distribution.—Cedar Keys, Florida, and Corpus Christi, Texas. Type of section *Sayella* Dall which is intermediate between *Blauneria* and *Detracia*.

(*Sayella*) *crosseana* Dall, Pr. U. S. N. M., 8, p. 286, pl. 18, f. 10, '85; Bull. 37, U. S. N. M., p. 92, pl. 47, f. 10, '89; Singley, 4th Ann. Rept. Tex. Surv., p. 343, '92.

Distribution.—West Florida at Egmont Key (Tampa Bay); Corpus Christi, Texas and the Bahamas.

Genus **PLANORBIS** Guettard

ophis Dall, Proc. U. S. N. M., 46, p. 236, pl. 21, f. 3, 4, 1914.

Distribution.—Upper Miocene or Pliocene. Well near Alexandria, La., at 49 feet. Brackish water formation.

Note.—The living species of this fresh water genus are not included in this Synopsis.

Genus **TRALIA** Gray

pusilla Gmelin, Syst. Nat. p. 3436, 1792, (as *Voluta*); Dall, Pr. U. S. N. M., 8, p. 276, pl. 18, f. 5, '85; Bull. 37, U. S. N. M., p. 92, pl. 47, f. 5, '89; Dall & Simpson, Bull. U. S. Fish Com. 1, p. 369, pl. 54, f. 13, 1901.

triplicata Donovan, 1802; *ovula* Bruguiere, 1789; *nitens* Lamarck, 1822.

Distribution.—Cedar Keys to Guadeloupe.

minuscula Dall, Bull. 37, U. S. N. M., p. 92, 1889.

Distribution.—Tampa to Bahamas.

(*Alexia*) *myosotis* Draparnaud, Tabl., p. 53, '01, (as *Auricula*); Dall, Pr. U. S. N. M., 8, p. 277, '85; Bull. 37, U. S. N. M., p. 92, pl. 52, f. 9, '89.

denticulata Montagu, Test. Brit., p. 234, pl. 20, f. 5, '02, (as *Voluta*)

Distribution.—Europe; Jamaica (introduced); West Florida. San Francisco (introduced).

Genus **BLAUNERIA** Shuttleworth

heteroclita Montagu, Test. Brit., Suppl., p. 469, '03, (as *Voluta*); Arango, Moll. Cubana, p. 60, '78; Dall, Pr. U. S. N. M., 8, p. 287, pl. 17, f. 6, '85; Bull. 37, U. S. N. M., p. 92, pl. 47, f. 14, '89, Dall & Simpson, Bull. U. S. Fish Com., 1, p. 369, 1901.

pellucida Pfeiffer, '40, *cubensis* Pfr.

Distribution.—Tampa and Marco, West Florida. Also Antillean.

Genus **SIPHONARIA** Sowerby

alternata Say, Jour. A. N. S. Phila., 5, p. 215, '26, (as *Patella*); Binney, Land & F. W. Sh., 2, p. 153, f. 254, '65; Dall, Pr. U. S. N. M., 8, p. 287, '85; Bull. 37, U. S. N. M., p. 92, 1889.

Distribution.—The variety *brunnea* Hanley (Pr. Z. S., pp. 21, 151, '58) is found at Sarasota Bay, West Fla., and Bermuda.

lineolata d'Orbigny, Moll. Cuba, 1, pl. 17, f. 13-15; Dall, Bull. 37, U. S. N. M., p. 92, '89.

Distribution.—Fernandina, Fla., to Brazil and Texas region of the Gulf of Mexico.

Genus **WILLIAMIA** Monterosato

krebsi Moersch, Dall, Bull. 37, U. S. N. M., p. 92, '89.

Distribution.—West Florida to Barbados.

Genus **VERONICELLA** Blainville

floridana Binney, Terr. Moll. U. S., 2, pl. 67, f. 17, '51; Dall, Bull. 37, U. S. N. M., p. 90, 1889.

Distribution.—Charlotte Harbor, West Florida to Florida Keys.

Note.—Since Blainville erroneously attributed a shell to this slug-like genus, Ferussac's later name *Vaginula* is often used; but *Veronicella* has priority.

ORDER CTENOBRANCHIATA

Genus **TEREBRA** Bruguiere

cinerea Born, Test. Mus. Vind., p. 267, pl. 10, f. 11, 12, 1780; Tryon, Man., 7, p. 31, pl. 9, f. 67, 1885; Dall, Bull. M. C. Z., 18, p. 63, '89; Singley, 4th Ann. Rept. Tex., p. 332, '92; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 382, 1901.

salleana Deshayes, *jamaicensis* C. B. Adams.

Distribution.—West Indies to Colombia. Gulf coast: Chandeleurs, La., Corpus Christi, Tex. Pleistocene, New Orleans Pumping Station, No. 7.

dislocata Say. Jour. A. N. S. Phila., 2, p. 236, 1825, (as *Cerithium*); Hilgard, House of Rep., Ex. Doc. 1, pt. 2, p. 887, '78; Tryon, Man., 7, p. 18, pl. 4, f. 63, '85; Singley, 4th Ann. Rept. Tex., p. 332, '92; Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903.

rudis Gray, *petitii* Kiener. Not *petiti* Maury, 1917.

Distribution.—Maryland to West Indies and Venezuela. Miocene to Recent. Gulf coast Recent; Cedar Keys, Fla.; Chandeleurs, La.; Galveston & Corpus Christi, Texas. Pleistocene of New Orleans pumping station No. 7; New Orleans artesian well of 1856; Lake Borgne borings; Knapp's wells, Terrebonne Parish, No. 1 at 1600-1700, 2000-2150 ft., No. 2 at 1150-1290, 1731-1739, No. 3 at 1150-1525 feet. Also of North Creek, Manatee and Labelle, West Fla. Upper Miocene, Galveston well, 2158-2920 ft.

concava Say. Jour. A. N. S. Phila., 5, p. 207, 1827; Dall, Tr. W. Inst. Sci., 3, p. 24, 1890; Singley, 4th Ann. Rept. Tex., p. 332, '92; Harris, Bull. Am. Pal., vol. 1, p. 97, '95.

Distribution.—N. Carolina, Georgia and Texas, at Galveston. Pleistocene of North Creek, Fla. Pliocene, Caloosahatchie, Fla. Upper Miocene, Galveston well at 2552-2920 ft.

Note.—The variety *vinosa* Dall (Bull. M. C. Z., 18, p. 64, '89) is found on the Gulf coast at Sarasota Bay and Charlotte Harbor, West Fla.

protexta Conrad, Pr. A. N. S. Phila., 3, p. 26, 1843, (as *Cerithium*); Tryon, Man. 7, p. 25, pl. 6, f. 98, 1885; Dall, Bull. 37, U. S. N. M., p. 94, '89; Tr. Wagner Inst., 3, p. 25, '90; Dall & Simpson, Bull. Fish Com. 1, p. 382, 1901; Vaughan, Publ. No. 133, Carn. Inst., p. 171, 1910; Maury, Bull. Am. Pal. 29, p. 28, pl. 4, f. 1, 1917.

Distribution.—Hatteras to Texas 2-50 fms. Lower Miocene to Recent. Gulf coast: Cedar Keys & St. Marks, Fla.; Cameron, La.; Galveston, Tex. Pleistocene, North Creek, Manatee and Labelle, Fla.. The variety *lutescens* E. A. Smith, ranges from N. Carolina to West Florida. It is more distinctly reticulated than the typical form.

nassula Dall, Bull. M. C. Z., 18, p. 66, pl. 36, f. 8, 1889; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 383, 1901.

Distribution.—Martinique. Also Gulf of Mexico, Lat. 23° N., Lon. 88° W., at 95 fms.; Yucatan Strait, 640 fms.

limatula Dall, Bull. M. C. Z., 18, p. 66, 1889; Bull. 37, U. S. N. M., p. 94, '89.

Distribution.—N. Carolina to Barbados. Also Gulf of Mexico between Mississippi delta and Cedar Keys at 111 fms.

texana Dall, Nautilus, 12, p. 45, Aug., 1898; Pr. U. S. N. M., 24, p. 502, pl. 29, f. 8, 1902.

Distribution.—Matagorda Island, Texas. Collected by Hon. J. D. Mitchell. Very rare.

galvestonensis Harris, Bull. Am. Pal., vol. 1, p. 98, pl. 3, f. 5, 1895.

Distribution.—Upper Miocene, Galveston well at 2387-2871 1910.

calhounensis Maury, Bull. Am. Pal., No. 21, p. 4, pl. 1, f. 3, 1910.

Distribution.—Lower Miocene, Chipola marl, Bailey's Ferry, Fla., and Bascom No. 2 well Mobile, Alabama, at a depth of 1241 feet, Chipola horizon.

indenta Conrad, Cited by Mr. Aldrich from the Bascom No. 1 well, Mobile, Ala. at 1500-1556 feet.

langdoni Dall, Pr. U. S. N. M., 18, p. 39, 1895; Tr. W. Inst., 3, pl. 59, f. 27, 1903.

Distribution.—Lower Miocene, Chipola marl, Fla.; Upper Miocene Galveston well at 2158-2920 feet (Harris).

Genus **CONUS** Linnæus

proteus Hwass, Enc. Meth. vers, 1, pt. 2, p. 682, 1789; Reeve, Conch. Icon., f. 219, *b*; Dall, Bull. 37, U. S. N. M., p. 94, 1889; Vaughan, Publ. No. 133, Carn. Inst., p. 171, 1910; Maury, Bull. Am. Pal. No. 29, p. 42, pl. 6, f. 11, 1917.

leoninus Hwass, 1791, *spurius* auctores, as of Gmelin.

Distribution.—West coast Florida, 19 fms. South to Venezuela. Pliocene, Caloosahatchie River, and Pleistocene, Labelle, Fla.

centurio Born, Mus. Vind., pl. 7, f. 10, 1780; Tryon, Man., 6, p. 33, f. 9, f. 68, '1884; Dall, Bull. M. C. Z., 18, p. 69, '89.

Distribution.—Antilles. Also Gulf of Mexico between Mississippi delta and Cedar Keys at 25 fms.

delessertianus Recluz, Mag. de Zool., pl. 72, 1843; Tryon, Man., 6, p. 33, pl. 9, f. 67, '84; Dall (as *delessertii*) Bull. 37, U. S. N. M., p. 94, '89.

Distribution.—Hatteras to West Florida, 22-63 fms. Doubtful specimen, Porto Rico.

flavescens Gray, Sowerby, Conch. Ill., f. 68; Tryon, Man., 6, p. 36, pl. 10, f. 84, 1884; Dall, Bull. 37, U. S. N. M., p. 94, 1889.

Distribution.—Hatteras to Barbados, and West Florida, 15-170 fms. Pliocene to Recent.

floridanus Gabb, Am. Jour. Conch., 4, p. 195, pl. 15, f. 4, 1868; Tryon, Man. 6, p. 38, pl. 11, f. 4, 5, 1884; Dall, Bull. 37, p. 94, 1889; Tr. W. Inst. Sci., 3, p. 27, 1890.

Distribution.—Hatteras to Florida Keys and West Fla. Pliocene of the Caloosahatchie beds.

peali Green, Tr. Albany Inst., 1, p. 123, pl. 3, f. 3, 1830; Tryon, Man., 6, p. 36, pl. 10, f. 89-92, 1884; Dall, Bull. M. C. Z., 18, p. 68, '89.

stearnsi Conrad, Am. Jour. Conch., 5, p. 104, pl. 10, f. 1, 1869.

Distribution.—Hatteras to Isthmus of Panama. Also Cedar Keys, Florida, 0-5 fms. Pliocene, Caloosahatchie beds.

pygmaeus Reeve, Pr. Z. S., p. 179, 1843; Kiener, Coq. Viv. Conus, p. 174, pl. 111, f. 1 a-b, 1848; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 383, 1901.

Distribution.—West Florida to Tobago Isl. Pliocene, Caloosahatchie beds. Pleistocene, North Creek, Fla.

amphiurgus Dall, Bull. M. C. Z., 18, p. 70, 1889.

Distribution.—Coast of Yucatan, 27 fms.

chipolanus Dall, Pr. U. S. N.M., 18, p. 42, 1895.

Distribution.—Lower Miocene, Chipola marls, Florida and of the Bascom No. 2 well, Mobile, Alabama, at 1241 feet.

Genus **TURRIS** Bolten

albida Perry, Conch. Expl., pl. 32, f. 4, 1811, (as *Pleurotoma*); Dall, Bull. 37, U. S. N. M., p. 96, '89; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 384, 1901; Maury, Bull. Am. Pal. No. 29, p. 50, 1917.

Distribution.—Recent, Cedar Keys to Barbados, 26-100 fms. Oligocene of Yicksburg, Miss., and of Tampa, Fla.; Lower Miocene, Western Florida and Santo Domingo; Upper Miocene, Galveston well at 2158-2950 feet.

Note.—The variety *tellea* Dall (Bull. M. C. Z., 18, p. 72, 1889) was dredged in the Gulf of Mexico between Mississippi delta and Cedar Keys.

Genus **LEUCOSYRINX** Dall

verrilli Dall, Bull. M. C. Z., 9, p. 57, 1881, (as *Pleurotoma*); 18,

p. 75, pl. 10, f. 5, 1889; Bull. 37, pl. 10, f. 5, '89.

Distribution.—N. Carolina to Guadeloupe. Also Gulf of Mexico, Lat. 25° N., Lon. 84° W., 888 fms., and between Mississippi delta and Cedar Keys.

sigsbeei Dall, Bull. M. C. Z., 9, p. 57, 1881, (as *Pleurotoma*): 18, p. 76, pl. 11, f. 10, '89; Bull. 37, U. S. N. M., p. 96, pl. 11, f. 10, '89.

Distribution.—Yucatan Strait, 640 fms. Off Bequia, 1591 fms.

tenoceras Dall, Bull. M. C. Z., 18, p. 76, pl. 36, f. 5, 1889; Bull. 37, U. S. N. M., p. 96, pl. 36, f. 5, '89.

Distribution.—N. Carolina to Guadeloupe. Gulf of Mexico between Mississippi delta and Cedar Keys at 724 fms.

subgrundifera Dall, In Agassiz's Three Cruises of the Blake, 2, p. 66, f. 283, 1888, (as *Pleurotoma*); Bull. M. C. Z., 18, p. 77, pl. 38, f. 1, '89; Bull. 37, U. S. N. M., p. 96, pl. 38, f. 1, '89.

Distribution.—Cape Fear, N. C., to St. Kitt's, W. I. Gulf of Mexico, Yucatan Strait, 640 fms., and between Mississippi delta and Cedar Keys, 940 fms., U. S. Fish Com. St. 2384.

Genus **ANCISTROSYRINX** Dall

radiata Dall, Bull. M. C. Z., 18, p. 78, pl. 12, f. 12, 1889; Bull. 37, U. S. N. M., p. 96, pl. 12, f. 12, '89; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 384, 1901.

Distribution.—Gulf of Mexico, Yucatan Strait, 640 fms. and between Mississippi delta and Cedar Keys. Also Antillean.

Genus **GENOTA** Adams

mitrella Dall, Bull. M. C. Z., 9, p. 56, Aug., 1881, (as *Pleurotoma*); 18, p. 78, pl. 12, f. 5, '89; Bull. 37, U. S. N. M., p. 96, pl. 12, f. 5, '89.

didyma Watson, 1881.

Distribution.—Yucatan Strait, 640 fms. Also off Sombrero, W. I.

Genus **DRILLIA** Gray

ostrearum Stearns, Pr. Bost. Soc. N. H., 15, p. 22, 1872; Tryon, Man. 7, p. 197, pl. 34, f. 79, '84; Dall, Bull. 37, U. S. N. M., p. 96, '89; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 385, 1901.

Distribution.—Hatteras to Cape Catouche, Yucatan and Antilles. 15-170 fms. West Florida: Recent, Cedar Keys; Upper Oligocene, Tampa; Lower Miocene, Chipola beds; Pliocene, Caloosahatchie beds.

albicoma Dall, Bull. M. C. Z. 18, p. 83, pl. 10, f. 8, '89; Bull. U. S. N. M., 37, p. 96, pl. 10, f. 8, 1889.

Distribution.—Gulf of Mexico, Lat. 23° N., Lon. 89° W., 84 fms. Also off Barbados, and St. Thomas.

detecta Dall, Bull. M. C. Z., 9, p. 65, Aug., 1881: 18, p. 84, pl. 12, f. 11, 1889; Bull. 37, p. 96, pl. 12, f. 11, '89.

circumvoluta Watson, Jour. Linn. Soc., 15, p. 465, Nov. 1881; Rept. Chall. Gastr., p. 357, pl. 21, f. 1, 1885.

Distribution.—Gulf of Mexico, 339 fms. Also Culebra Isl, W. I.

alesidota var. **macilenta** Dall, Bull. M. C. Z., 18, p. 85, pl. 36, f. 1, 1889; Bull. 37, U. S. N. M., p. 96, pl. 36, f. 1, '89.

Distribution.—Cape Fear, N. C. to Barbados. Gulf of Mexico between Mississippi delta and Cedar Keys, 111 fms. Typical form of species, off Hatteras.

eucosmia var. **canna** Dall, Bull. M. C. Z., 18, p. 86, 1889; Bull. 37, U. S. N. M., p. 96, '89.

Distribution.—Cape Lookout, N. C., to Grenada, W. I. Also Gulf of Mexico, west of Florida, 50 fms.

leucomya Dall, Proc. U. S. N. M., 6, p. 328, pl. 10, f. 8, 1883; Bull. 37, p. 96, pl. 48, f. 7, 1889; Tr. W. Inst., 3, p. 36, 1890.

Distribution.—Shores of Gulf of Mexico from Sarasota, West Fla., to Yucatan, 3-5 fms. Pliocene, Caloosahatchie beds, Fla.

albinodata Reeve, Zool. Proc., 6, 1846; Tryon, Man., 6, p. 197. pl. 14, f. 5, 1884; Dall, Bull. 37, U. S. N. M., p. 96, '89.

Distribution.—Charlotte Harbor, West Fla., to Santo Domingo.

haliostrephes Dall, Bull. M. C. Z., 18, p. 86, pl. 13, f. 3, 1889; Bull. 37, U. S. N. M., p. 96, pl. 13, f. 3, '89.

Distribution.—Gulf of Mexico, West of Florida, 84 fms.

acestra Dall, Bull. 37, U. S. N. M., p. 96, pl. 10, f. 7, '89.

Distribution.—West Florida to Grenada 161-400 fms.

pharcida Dall, Bull. M. C. Z., 18, p. 88, pl. 12, f. 2, 1889; Bull. 37, p. 96, pl. 12, f. 2, '89.

exasperata Dall. Not of Reeve.

Distribution.—Gulf of Mexico, west of Florida, 229 fms. Also East Fla. to Barbados 150-1002 fms.

tristicha Dall, Bull. M. C. Z., 18, p. 88, 1889; Bull. 37, p. 98, 1889.

Distribution.—Three stations Gulf of Mexico between Mississippi delta and Cedar Keys, 111-210 fms. Temperature 52°-67° F.

ebur Reeves, Pr. Zool. Soc., p. 116, 1845, (as *Pleurotoma*); Conch. Icon., pl. 30, f. 275, '45; Tryon, Man., 6, p. 188, pl. 13, f. 56, '84; Dall, Bull. 37, U. S. N. M., p. 98, '89.

Distribution.—Hatteras to Sombrero Isl. Also Gulf of Mexico, West of Florida, Blake Station 10, at 34 fms.

pagodula Dall, Bull. M. C. Z., 18, p. 90, pl. 13, f. 6, 1889; Bull. 37, p. 98, pl. 13, f. 6, '89.

Distribution.—Gulf of Mexico, West of Florida, 50 fms. Also Barbados.

thea Dall, Pr. U. S. N. M., 6, p. 328, pl. 10, f. 5, 1883; Bull. M. C. Z., 18, p. 91, '89; Bull. 37, U. S. N. M., p. 98, pl. 48, f. 1, '89.

Distribution.—Hatteras to Florida Keys, and West Florida at Cedar Keys, 3-15 fms.

Note.—The variety *carminura* Dall (Bull. M. C. Z., 18, p. 91, 1889) was dredged in Gulf of Mexico, U. S. Fish Com. Station 2402 at 111 fms.

simpsoni Dall, Pr. Davenport Acad. Sci., 5, p. 54, 1887, (as *Pleurotoma*); Bull. M. C. Z., 18, p. 91, 1889.

Distribution.—Hatteras to Tampa Bay, West Florida, 15-18 fms.

lissotropis Dall, Bull. M. C. Z., 9, p. 58, Aug. 1881; 18, p. 91, pl. 11, f. 3, 4, 1889; Bull. 37, p. 98, pl. 11, f. 3, 4, '89.

hypsela Watson, Jour. Linn. Soc., 15, p. 433, Oct. 1881; Chall. Gastr., p. 341, pl. 21, f. 4, 1885.

Distribution.—Gulf of Mexico, West of Florida at 220 fms. Also Antillean. Variety *perpolita* Dall (Tr. W. Inst., 3, p. 36, '90), Caloosahatchie Pliocene.

dalli var. **cestrota** Dall, Bull. M. C. Z., 18, p. 92, 1889; Bull. 37, p. 98, '89.

Distribution.—Between the Mississippi delta and Cedar Keys, at 196 fms. Typical *dalli* Verrill, ranges from Martha's Vineyard to Delaware Bay.

nucleata Dall, Bull. M. C. Z., 9, p. 62, '81; 18, p. 92, pl. 11, f. 1, 1889.

Distribution.—Gulf of Mexico, 229-339 fms. Also Antillean. *Pleurotoma ambliia* Watson may be a synonym.

verrilli Dall, Bull. M. C. Z., 9, p. 68, 1881; 18, p. 93, pl. 11, f. 2, 1889; Bull. 37, p. 98, pl. 11, f. 2, '89.

Distribution.—Gulf of Mexico, West of Florida, 220-310 fms.

havanensis Dall, Bull. M. C. Z., 9, p. 67, 1881; 18, p. 93, pl. 11, f. 5, '89.

Distribution.—Yucatan Strait, 640 fms. Also off Havana.

lithocolleta Watson, Jour. Linn. Soc., 15, p. 441, 1881; Chall. Rept. Gastr., p. 320, pl. 24, f. 6, 1885 (as *Pleurotoma*); Dall, Bull. M. C. Z., 18, p. 95, pl. 11, f. 6, '89; Bull. 37, p. 98, pl. 11, f. 6, '89.

Distribution.—Hatteras to Guadeloupe, W. I. Also Gulf of Mexico between Mississippi delta and Cedar Keys, at 940 fms.

Genus **CYMATOSYRINX** Dall

centimata Dall, Bull. M. C. Z., 18, p. 95, pl. 36, f. 9, 1889; Bull. 37, U. S. N. M., p. 98, pl. 36, f. 9, '89.

Distribution.—Hatteras and Gulf of Mexico, Lat. 24° N., Lon. 84° W. at 1920 fms., and between Mississippi and Cedar Keys at 1181 fms.

moseri Dall, Bull. M. C. Z., 18, p. 97, pl. 36, f. 3, 1889; Bull. 37, U. S. N. M., p. 98, pl. 36, f. 3, '89.

Distribution.—Cape Hatteras and Sarasota Bay, West Fla.

Genus **PLEUROTOMELLA** Verrill

packardi Verrill, Am. Jour. Sci., (3) 5, p. 15, 1873; Tr. Conn. Acad., 5, p. 453, pl. 43, f. 9, pl. 57, f. 5, '82.

Distribution.—Gulf of Maine to Rhode Island. The variety *benedicti* V. & S., (Dall, Bull. 37, U. S. N. M., p. 102, pl. 14, f. 4, pl. 60, f. 70 a, '89) ranges from Gulf of Maine to Bequia, 1290-1507 fms. Gulf of Mexico, West Florida region.

leucomata Dall, Bull. M. C. Z., 9, p. 63, 1881, (as *Drillia*); 18, p. 120, pl. 11, f. 13, '89; Bull. 37, p. 102, pl. 11, f. 13, 1889.

Distribution.—Gulf of Mexico between Mississippi delta and Cedar Keys. Also Florida Strait. 533-940 fms.

agassizi Verrill and Smith, Am. Jour. Sci., 22, p. p. 394, 1880; Tr. Conn. Acad., 5, p. 454, pl. 57, f. 3, 3 a, '82.

Distribution.—Rhode Island to Cape Fear, N. C. The variety *mexicana* Dall (Bull. 37, U. S. N. M., p. 104, pl. 11, f. 14, 1889) ranges from Western Florida and Yucatan regions of the Gulf to Martinique. 502-640 fms.

filifera Dall, Bull. M. C. Z., 9, p. 56, 1881, (as *Bela*); 18, p. 123, pl. 12, f. 9, '89; Bull. 37, p. 104, p. 12, f. 9, '89.

Distribution.—Gulf of Mexico, West of Florida, 331 fms.

hadria Dall, Bull. M. C. Z., 18, p. 125, 1889; Bull. 37, p. 104, 1889.

Distribution.—Cape Fear, N. C., 407 fms. Also Gulf of Mexico between Mississippi delta and Cedar Keys, at 1181 fms.

extensa Dall, Bull. M. C. Z., 9, p. 55, Aug., 1881, (as var. of *Pleurotoma blakeana*); 18, p. 126, pl. 10, f. 2, '89; Bull. 37, p. 104, pl. 10, f. 2, '89.

Pleurotoma streptophora Watson, Jour. Linn. Soc., 15, p. 464, Nov. 1881; Chall. Gastr., p. 366, pl. 19, f. 8 a-b, 1885.

Distribution.—Gulf of Mexico, Lat. 23° N., Lon. 88° W., 804 fms.; Yucatan Strait 640 fms. Also North Atlantic.

blakeana Dall, Bull. M. C. Z., 9, p. 54, 1881; 18, p. 126, pl. 10, f. 1, '89; Bull. 37, p. 104, pl. 10, f. 1, '89.

brevis Verrill, Tr. Conn. Acad., 6, p. 417, pl. 44, f. 8, '85.

Distribution.—Gulf of Maine to Santa Cruz, W. I., 100-1608 fms. Also Yucatan Strait, 640 fms.; Florida Strait, 339 fms.

Genus **GLYPHOSTOMA** Gabb

gabbi Dall, Bull. M. C. Z., 18, p. 108, pl. 13, f. 4, 5, 7, 8, 1889;
Bull. 37, U. S. N. M., p. 100, pl. 13, f. 4, 5, 7, 8, '89.

Distribution.—Gulf of Mexico, Blake Station 36, 84 fms.; U. S. F. C. Sta. 2405, west Florida, 30-50 fms. Also off Barbados.

gratula Dall, Bull. M. C. Z., 9, p. 64, Aug., 1881, (as *Pleurotoma*); 18, p. 110, pl. 12, f. 16, '89; Bull. 37, p. 100, pl. 12, f. 10, '89.

incilis Watson, Jour. Linn. Soc., 15, p. 425, Oct., 1881; Rept. Chall. Gastr., p. 304, pl. 24, f. 5, '85.

Distribution.—Gulf of Mexico between Mississippi delta and Cedar Keys, 227 fms. Also East Florida and Antilles. Pliocene, Caloosahatchie beds.

Genus **MANGILIA** Risso

balteata Reeve, Conch., Icon., 3, pl. 8, f. 57, 1846; Tryon, Man. Conch., 6, p. 247, pl. 24, f. 11, '84; Dall, Bull. 37, U. S. N. M., p. 100, '89; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 388, 1901.

Distribution.—Hatteras to Barbados and West Florida. Pliocene to Recent.

stricta Reeve, Pr. Z. S. p. 46, '46; Tryon, Man., 6, p. 260, pl. 24, f. 26, '84; Dall, Bull. 37, U. S. N. M., p. 100, '89.

Distribution.—West Florida to Florida Keys.

biconica C. B. Adams, Conch. Contr., p. 65; Dall Bull. 37, p. 100, '89.

Distribution.— West Florida to Jamaica. Unfigured.

plicosa C. B. Adams, Contr. Conch., p. 54, '50, (as *Pleurotoma*); Dall, Bull. 37, U. S. N. M., p. 100, pl. 50, f. 14, '89; Singly, 4th Ann. Rept. Tex. Surv., p. 333, '92; Johnson, Occ. Pa. Bost. Soc., N. H., 7, p. 145, 1915.

Pleurotoma plicata C. B. Adams, Bost. Jour. N. H., 3, p. 318,

pl. 3, f. 6, '40. Not of Lamarck.

plicatum Kurtz, 1860; *brunnea* Perkins, '69.

Clathurella jewetti Stearns, Pr. A. N. S. Phila., for 1873, p. 346; Dall, Pr. U. S. N. M., 6, p. 329, 1883.

Distribution.—Massachusetts to Florida Keys and Gulf coast at Cedar Keys, Fla.; Corpus Christi Bay, Texas, 0-5 fms. Pleistocene, North Creek, Fla.; Pliocene, Caloosahatchie beds, Fla.

rubella Kurtz and Stimpson, Pr. Bost. Soc. N. H., 4, p. 115, '51; Dall, Bull. 37, U. S. N. M., p. 100, '89; Tr. Wagner Inst. Sci., 3, p. 41, '90.

Distribution.—Cape Lookout, N. C., to Charlotte Harbor, West Fla. Pliocene, Caloosahatchie beds. Pleistocene, Knapp's No. 2 well, Terrebonne Parish, La., at 1800 feet.

stellata Stearns, Pr. Bost. Soc., N. H., 15, p. 22, '72; Dall, Pr. U. S. N. M., 6, p. 328, '83; Tryon, Man. 6, p. 246, pl. 34, f. 84, '84; Dall, Bull. 37, p. 100, '89; Tr. W. I. S., 3, p. 41, '90.

Distribution.—Cedar Keys and Tampa to Key West, Fla., Pliocene, Caloosahatchie beds.

atrostyla Dall, Bull. 37, U. S. N. M., p. 102, pl. 41, f. 4, 4a, 1889.

Distribution.—Hatteras to Barbados. Also West Florida, 14-333 fms.

limonitella Dall, Pr. U. S. N. M., 6, p. 329, pl. 10, f. 10, 1883; Bull. 37, p. 102, pl. 48, f. 2, '89.

Distribution.—Cedar Keys to Tampa, Fla., 0-5 fms. Pleistocene, Knapp's No. 3 well, Terrebonne Parish, La., at 1150-1200 feet. Perhaps this species is a dwarfed form of *atrostyla* Dall.

cerina Kurtz & Stimpson, Pr. Bost. Soc., 4, p. 115, 1851; (as *Pleurotoma*); Hilgard, Rept., Chief Engineers to Sec., War., p.

358, 1870; House of Rep., Ex. Doc. 1, pt. 2; p. 886, '78; Dall, Pr. U. S. N. M., 6, p. 328, '83; Tryon, Man., 6, p. 310, pl. 22, f. 43, '84; Dall, Bull. 37, U. S. N. M., p. 102, pl. 44, f. 16a, '89; Vanatta, Pr. A. N. S. Phila., 55, p. 757. 1903; Johnson, Bost. Soc. N. H., Occ. Pa., 7, p. 146, 1915.

Distribution.—Massachusetts to Texas. Gulf coast: Cedar Keys, St. Joseph's Bay, Crooked Island, Florida; Galveston and Corpus Christi, Texas. Pleistocene, New Orleans well of 1856; Lake Borgne borings; Grand Chenier; Knapp's wells, Terrebonne Parish, No. 2 well at 1190-1439, No. 3 at 1500-1525 feet.

cerinella Dall, Bull. M. C. Z., 18, p. 113, 1889; Bull. 37, U. S. N. M., p. 102, '89.

Distribution.—Hatteras to West Florida and Galveston, 14-22 fms. Pleistocene, Knapp's No. 3 well, Terrebonne Parish, La., at 1500-1525 feet; North Creek, Fla.

quadrata Reeve, Pr. Zool. Soc., p. 114, 1845, (as *Clathurella*); Tryon, Man., 6, p. 278, pl. 18, f. 25, '84; Dall, Bull. 37, U. S. N. M., p. 102, '89.

Distribution.—Hatteras to Yucatan. Dall regards *diminuta* C. B. Adams (Conch. Contr., p. 63) as a variety ranging from Hatteras to Florida Keys and West Fla.

melanitica Dall, Bull. 37, U. S. N. M., p. 102, 1889.

Distribution.—Hatteras to Haiti and West Florida.

antonia Dall, Bull. M. C. Z., 9, p. 59, 1881; 18, p. 116, pl. 10, f. 4, pl. 11, f. 11, '89; Bull. 37, U. S. N. M., p. 102, pl. 10, f. 4, pl. 11, f. 11, 1889.

Distribution.—Yucatan Strait, 640 fms. Also Guadeloupe.

peripla Dall, Bull. M. C. Z., 9, p. 68, Aug., 1881; (as *Drillia*); 18, p. 115, pl. 11, f. 17, '89; Bull. 37, p. 102, pl. 11, f. 17, 1889.

chyta Watson, Jour. Linn. Soc., 15, p. 466, Nov., 1881 (as *Defrancia*); Rept. Chall. Gastr., p. 358, pl. 18, f. 4, 1885.

Distribution.—Yucatan Strait, 640 fms.

elusiva Dall, Bull. M. C. Z., 9, p. p. 69, Aug., 1881, (as *Drillia*); 18, p. 115, pl. 12, f. 7, '89; Bull. 37, U. S. N. M., p. 102, pl. 12, f. 7, '89.

Distribution.—Yucatan Strait, 640 fms. Perhaps identical with *Defrancia perpauxilla* Watson.

bandella Dall, Bull. M. C. Z., 9, p. 59, 1881; Verrill, Tr. Conn. Acad., 6, p. 250, '84; Dall, Bull. M. C. Z., 18, p. 116, pl. 10, f. 3, '89; Bull. 37, U. S. N. M., p. 102, pl. 10, f. 3, pl. 60, f. 73, '89.

Pleurotomella diomedæ Verrill and Smith, Tr. Conn. Acad., 6, p. 152, pl. 31, f. 5, 5a, 1884.

Distribution.—East coast United States and Gulf of Mexico, Blake Station 47, at 321 fms, Greatest depth 2100 fms.

comatotropis Dall, Bull. M. C. Z., 9, p. 58, 1881; Verrill, Tr. Conn. Acad., p. 452, '82; Dall, Bull. M. C. Z., 18, p. 116, pl. 11, f. 12, '89; Bull. 37, U. S. N. M., p. 102, pl. 11, f. 12, pl. 44, f. 8, pl. 61, f. 77, '89; Johnson, Occ. Pa. Bost. Soc., N. H., 7, p. 146, 1915.

tiara Watson, Jour. Linn. Soc., p. 440, 1881; Chall. Gastr., p. 347, pl. 21, f. 7, '85.

Taranis pulchella Verrill, '82 and '84.

Distribution.—Massachusetts to Barbados, 50-1075 fms. Also Yucatan Strait, 640 fms.

pelagia Dall, Bull. M. C. Z., 9, p. 61, 1881; 18, p. 117, pl. 11, f. 9, '89; Bull. 37, U. S. N. M., p. 102, pl. 11, f. 9, '89.

Distribution.—Gulf of Mexico, Blake Station 44, in 539 fms., bottom temperature 39° F. Also Antillean.

exsculpta Watson, Jour. Linn. Soc., p. 247, 1882. (as *Drillia*); Chall. Gastr., p. 371, Pl. 24, f. 2, '85 (as *Clionella*); Dall, Bull. M. C. Z., 18, p. 117, pl. 15, f. 9, '89; Bull. 37, p. 102, pl. 15, f. 9, '89.

Distribution.—Yucatan Strait, 640 fms. Also Santa Cruz, W. I.

subsida Dall, Bull. M. C. Z., 9, p. 62, 1881; 18, p. 118, pl. 12, f. 3, '89; Bull. 37, U. S. N. M., p. 102, pl. 12, f. 3, '89.

Distribution.—Gulf of Mexico, West of Florida, 339 fms. Also Cuba.

ipara Dall, Bull. M. C. Z., 9, p. 57, 1881; 18, p. 115, f. 14, 1889.

Distribution.—Yucatan Strait, 640 fms. Also Martinique, 502 fms.

Genus **CYTHARELLA** Monterosato

cymella Dall, Bull. M. C. Z., 18, pl. 12, f. 4, 1889, (as *Cythara*); Bull. 37, U. S. N. M., p. 100, pl. 12, f. 4, '89.

Distribution.—Gulf of Mexico, 220 fms. Also Antillean.

galvestonensis Harris, Bull. Am. Pal., vol. 1, p. 100, 1895.

Distribution.—Upper Miocene, Galveston well, at 2236-2871 feet.

Genus **DAPHNELLA** Hinds

leucophlegma Dall, Bull. M. C. Z., 9, p. 70, 1881; 18, p. 102, pl. 9, f. 9, 1889.

Distribution.—Gulf of Mexico, Blake Station 2, in 805 fms.

(**Eubela**) **limacina** Dall, Bull. M. C. Z., 9, p. 55, Aug., 1881; Ver-rill, Tr. Conn. Acad., 5, p. 452, '82; 6, p. 265, '84; Dall, Bull. M. C. Z., 18, p. 106, pl. 9, f. 10, '89; Bull. 37, U. S. N. M., p. 100, pl. 9, f. 10, '89.

normophora Watson, Jour. Linn. Soc., 15, p. 457, Nov. 1881; Chall. Gastr., p. 351, pl. 21, f. 9, '85.

Distribution.—Massachusetts to Pernambuco. Gulf of Mexico, Yucatan Strait, 640 fms. and Blake Station 2, west of Florida, at 895 fms.

Genus **CANCELLARIA** Lamarck

reticulata Linnæus, Syst. Nat., ed. XII, p. 1190, 1767, (as *Voluta*); Sowerby, Thesaurus, 2, p. 442, pl. 92, f. 17, 1848; Tryon, Man., 7, p. 69, pl. 2, f. 25, 26, '85; Dall, Bull. M. C. Z., 18, p. 129, '89; Vanatta, Pr. A. N. S., Phila., 55, p. 757, 1903.

Distribution.—Hatteras to Guadeloupe, 5-30 fms. Gulf coast: Crooked Isl., Charlotte Harbor and Sarasota Bay, West Fla.; Chandeleurs, La.; Galveston, Tex. Pleistocene, New Orleans Pumping Station No, 7.

Note.—The fossil species, *C. conradi* Dall, (Tr. Wagner Inst., 3, p. 42, 1890), is closely allied to *C. reticulata*.

galvestonensis Harris, Bull. Am. Pal., vol. 1, p. 100, pl. 3, f. 11, 1895.

Distribution.—Upper Miocene, Galveston well at 2552-2600 feet.

(**Norona**) **clavatula** Sowerby, Pr. Zool. Soc., p. 52, 1832; Conch. Ill., f. 12, '32; Tryon, Man., 7, p. 75, pl. 4, f. 61, '85; Harris, Bull. Am. Pal., vol. 1, p. 99, '95; Dall, Pr. U. S. N. M., 37, p. 209, 1910.

Distribution.—Recent, Panama to Paita, Peru. Upper Miocene, Galveston well at 2552-2600 feet, (Harris). Not in the recent Atlantic fauna.

(**Trigonostoma**) **agassizi** Dall, Bull. M. C. Z., 18, p. 130, pl. 35, f. 4, 1889; Bull. 37, U. S. N. M., p. 104, pl. 35, f. 4, '89.

Distribution.—Cape Lookout, N. C., 18 fms. Gulf of Mexico between Mississippi delta and Cedar Keys, 25 fms.

(**Trigonostoma**) **tenera** Philippi, Zeitsch. fur. Mal., 5, p. 24, '48;

Dall, Bull. 37, U. S. N. M., p. 104, '89; Tr. W. I. S., 3, p. 43, 1890.

stimpsoni Calkins, Pr. Dav. A. S., 2, p. 250, pl. 8, f. 4, 5, 1878.

Distribution.—Gulf of Mexico, Yucatan region. Pliocene, Caloosahatchie beds, Fla.

Genus **ADMETE** Kroyer

microscopica Dall, Bull. M. C. Z., 18, p. 131, 1889, (as *Trigono-ostoma?*); Bull. 37, U. S. N. M., p. 106, '89; Pr. U. S. N. M., 24, p. 504, pl. 29, f. 4, 1902.

Distribution.—Campeche Bank, 200 fms. Also off Fernandina and Cuba.

Genus **OLIVA** Martyn

circinata Marrat, Sowerby's Thes. Conch., 4, *Oliva*, p. 21, pl. 17, f. 277, 1880; Johnson, Nautilus, 24, p. 123, Mar., 1911.

litterata Lamarck, Ann. du Mus., 16, p. 315, 1810; Not of Bolten, 1798. Hilgard, House of Rep. Ex. Doc. 1, pt. 2, p. 886, '78; Dall, Bull. 37, U. S. N. M., p. 106, pl. 34, f. 8, 8a, '89; Singley, 4th Ann. Rept. Tex. G. S., p. 333, '92; Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903.

carolinensis Conrad, Pr. A. N. S. Phila., 14, p. 563, '63.

Distribution.—Hatteras to the West Indies, 0-2 fms. Gulf coast: Franklin and Calhoun Counties, Fla., Chandeleurs, Point on Fer, Cameron, La.; Galveston, Corpus Christi, Matagorda, Tex. Pleistocene, New Orleans artesian well of 1856, Lake Borgne borings, Knapp's wells, Terrebonne Parish, No. 1 well at 2000-2450, No. 2 at 1780-1800, No. 3 at 1150-2029 feet. Pliocene, Caloosahatchie beds, Fla.

liodes Dall, Tr. Wagner Inst. Sci., 3, p. 1576, pl. 58, 1903.

Distribution.—Lower Miocene, Chipola marl, West Florida; Bascom No. 2 well, Mobile, Alabama, at 1241 feet, Chipola horizon.

Genus **OLIVELLA** Swainson

mutica Say, Jour. A. N. S. Phila., 2, p. 228, 1822; Hilgard, Rept. Chief Engineers to Sec. War, p. 358, '70, House of Rep., Ex. Doc. 1, pt 2, p. 886, '78; Dall, Pr. U. S. N. M., 6, p. 324, '83; Bull. 37, U. S. N. M., p. 106, pl. 34, f. 1, 2, '89; Tr. W. I. S., p. 45, '90; Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903; Deussen, U. S. G. S. Water-Supply Paper, No. 335, p. 77, 1914.

Distribution.—North Carolina to Trinidad Isl. Gulf coast: Recent, Cedar Keys, St. Mark's and St. Joseph's Bay, Fla.; Galveston and Corpus Christi, Tex. Pleistocene, New Orleans artesian well of 1856, Lake Borgne borings; Knapp's wells, Terrebonne Parish, No. 1 at 1600-1700, No. 2 at 1050-1842, No. 3 at 1150-1839 feet; North Creek, Manatee and Labelle, Fla. Pliocene, Caloosahatchie beds, Fla., and New Orleans Gymnasium well at 1200 feet. Miocene, Gilbert well No. 10, Bateson, Tex. at 323 feet.

pusilla Marrat, Thes. Conch., t. 21, f. 356-358, '71; Tryon, Man. Conch., 5, p. 64, pl. 14, f. 45, 46, '83; Vanatta, Pr. A. N. S. Phila., 55, p. 757, '03.

Distribution.—Cited by Vanatta from St. Joseph's Bay and Crooked Isl., West Fla.

nivea Gmelin, Linn. Syst. Nat., ed. XIII, p. 3442, 1792; Reeve, Conch. Icon., f. 64 a, '50; Tryon, Man., 5, p. 67, pl. 15, f. 74, '83; Dall, Bull. 37, U. S. N. M., p. 106, '89; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 393, '01.

Distribution.—Sarasota, West Fla. to Haiti, 27-805 fms.

jaspidea Gmelin, Syst. Nat., ed. 13, p. 3442, 1792; Reeve, Conch. Icon., 6, p. 22, f. 58, 1850; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 392, 1901.

Distribution.—Hatteras to Brazil and West Florida, 27-805 fms.

floralia Duclos, in Chenu, Ill. Conch., p. 6; Tryon, Man., 5, p.

68, pl. 16, f. 2, 3, 1883; Dall, Bull. 37, U. S. N. M., p. 106, '89.

Distribution.—Hatteras to Tortola and West Florida.

eulacta Dall, Tr. Wagner Inst. Sci., 3, p. 1576, pl. 58, f. 3, 1903.

Distribution.—Lower Miocene, Chipola marl, Fla, and Mobile Oil Co's No. 2 Bascom well near Mobile, Alabama, at 1241 feet, Chipola horizon.

galvestonensis Harris, Bull. Am. Pal., vol. 1, p. 100, pl. 3, f. 13, 1895.

Distribution.—Upper Miocene, Galveston well at 2410-2871 feet.

subtexana Harris, Bull. Am. Pal., vol. 1, p. 101, pl. 4, f. 1, 1895.

Distribution.—Upper Miocene, Galveston well at 2552-2871 feet

Genus **MARGINELLA** Lamarck

carnea Storer, Jour. Bost. Soc., N. H., 1, p. 465, pl. 9, f. 3, 4, 1837; Sowerby, Thes., f. 103; Tryon, Man., 5, p. 33, pl. 10, f. 86, 1883; Dall, Bull. 37, U. S. N. M., p. 106, '89.

Distribution.—Charlotte Harbor, West Fla., Florida Keys and Antilles.

storeria Couthouy, Jour. Bost. Soc. N. H., 1, p. 440, pl. 9, f. 1, 2, 1837; Dall, Bull. 37, U. S. N. M., p. 106, '89.

Distribution.—Gulf of Mexico, West Fla., to Colon.

cassis Dall, Bull. M. C. Z., 18, p. 137, pl. 35, f. 8, 1889; Bull. 37, p. 106, pl. 35, f. 8, '89.

Distribution.—Gulf of Mexico, Lat. 25° N., Lon. 84° W., at 101 fms. Also off Cuba.

apicinca Menke, Syn. Meth. Moll., p. 87, 1828; Tryon, Man., 5, p. 33, pl. 10, f. 89, '83; Dall, Bull. 37, U. S. N. M., p. 106,

'89; Singley, 4th Ann. Rept. Tex., p. 333, '92; Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903; Vaughan, 2nd Ann. Rept. Fla. Geol. Surv., p. 148, 1909.

conoidalis Reeve, Conch. Icon., 15, pl. 18, f. 87.

Distribution.—Hatteras to Jamaica, Gulf coast: West Fla. and Texas, Pleistocene, Manatee, Orient and Labelle, West Florida.

pellucida Pfeiffer, Wiegmann's Archiv; 1, p. 258, 1840; Tryon, Man., 5, p. 33, pl. 10, f. 91, '83; Dall, Bull. 37, U. S. N. M., p. 106, '89.

Distribution.—Sarasota, West Fla. and West Indies.

watsoni Dall, Bull. M. C. Z., 9, p. 71, 1881; 18, p. 137, pl. 19, f. 3, pl. 38, f. 2, '89; Bull. 37, U. S. N. M., p. 106, pl. 19, f. 3, pl. 38, f. 2, '89.

Distribution.—Yucatan Strait, 640 fms. Also off Havana, 220-805 fms.

virginiana Conrad, Am. Jour. Conch., 4, p. 67, pl. 5, f. 4, 1868, (as *Prunum*); Dall, Bull. 37, U. S. N. M., p. 106, '89; Tr. W. I. S., 3, p. 48, '90.

Distribution.—Recent, North Carolina to Yucatan, 10-294 fms. Pliocene, Caloosahatchie beds, Fla. Miocene, James River, Va.

denticulata Conrad, Jour. A. N. S. Phila., 6, p. 225, pl. 9, f. 21, 1830. (Not of Tate, '78); Dall, Bull. 37, U. S. N. M., p. 108, '89; Tr. W. I. S. 3, p. 51, pl. 5 f. 8, 1890.

Distribution.—Recent, Hatteras to Barbados. Also West Florida, 5-294 fms. Pliocene, Caloosahatchie beds, Upper Miocene, Maryland and Virginia.

opalina Stearns, Pr. Bost. Soc. N. H., 15, p. 21, 1872; Dall, Pr. U. S. N. M., 6, p. 324, '83; Bull. 37, p. 108, '89, (as *denticulata* var. *opalina*).

Distribution.—Hatteras to Barbados. Recent, Tampa (type

locality) and Cedar Keys, 14 fms. Also Barbados, 100 fms.
aureocincta Stearns, Pr. Bost. Soc. N. H., 15, p. 22, 1872; Dall,
Bull. 37, U. S. N. M., p. 108, '89; Tr. W. I. S., 3, p. 52,
1890.

Distribution.—Virginia to West Florida, 3-44 fms. Pliocene.
Caloosahatchie beds.

minuta Pfeiffer, Wiegmann's Archiv. fur Naturg., 1, p. 259, 1840;
Tryon, Man., 5, p. 43, pl. 12, f. 60, '83; Dall, Bull. 37, U.
S. N. M., p. 108, '89.

Distribution.—Mediterranean, West Indies, East and West
Florida, 5-294 fms. Miocene to Recent. Also Pleistocene,
southern Europe and of North Creek, West Fla.

minima Guilding, Sowerby, Thes. Conch., 1, p. 388, pl. 78, f.
220, 1846; Dall, Pr. U. S. N. M., 6, p. 324, '83; Tryon,
Man., 5, p. 44, pl. 12, f. 62, '83; Dall, Bull. 37, U. S. N. M.,
p. 108, '89.

Distribution.—Cape Lookout, N. C., to Haiti. Also West
Florida at Cedar Keys, 0-22 fms.

Note.—Tryon placed this species in synonymy of *minuta*
Pfr. According to Moersch *minima* is a synonym of *lavalleana*
d'Orbigny, (Moll. Cuba, 2, p. 101, pl. 20, f. 36-38, 1842).

succinea Conrad, Pr. A. N. S. Phila., 26, pl. 1, f. 17, 1846;
Tryon, Man., 5, p. 34, pl. 10, f. 93, '83; Dall, Bull. 37, U.
S. N. M., p. 108, pl. 19, f. 6, '89.

Distribution.—Fernandina, East Fla., to Sombrero, W. I.
Gulf coast at Tampa, 70-1002 fms. Placed by Tryon in
synonymy with *nitida* Hinds.

fusina Dall, Bull. M. C. Z., 9, p. 72, 1881; 18, p. 138, pl. 19, f.
4, '89; Bull. 37, p. 106, pl. 19, f. 4, '89.

Distribution.—Yucatan Strait, 640 fms. Also off Fernan-
dina, Fla.

yucatecana Dall, Bull. M. C. Z., 9, p. 72, 1881; 18, p. 138, pl. 19, f. 5, '89; Bull. 37, U. S. N. M., p. 106, pl. 19, f. 5, 1889.

Distribution.—Yucatan Strait, 640 fms. Also Sand Key, Fla., 125 fms.

seminula Dall, Bull. M. C. Z., 9, p. 72, 1881; 18, p. 139, pl. 19, f. 2, '89; Bull. 37, U. S. N. M., p. 108, pl. 19, f. 2, '89.

Distribution.—Yucatan Strait, 640 fms. Also Antillean.

rostrata Redfield, Cat. Marg., Am. Jour. Conch., 6, p. 246, (note), 1870; Dall, Bull. M. C. Z., 18, p. 137, '89; Tr. W. I. S., 3, p. 50, 1890.

oblonga Sowerby, Thesaurus, pl. 76, f. 106, 108. 10N
oblonga of Swainson.

Distribution.—Gulf of Mexico, Lat. 23° N., Lon. 89° W., in 84 fms. Pliocene, Caloosahatchie beds.

(*Volvarina*) *avena* Valenciennes, in Kiener, Coq. Viv. *Marginella*, p. 17, pl. 6, f. 24, 1841; Sowerby, Thes. Conch., 1, p. 391, pl. 76, f. 130, '49; Dall, Bull. 37, U. S. N. M., p. 108, '89; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 394, 1901; Vaughan, Publ. No. 133, Carn. Inst., p. 171, 1910.

Distribution.—Key West to Colon. Also Texas region, Gulf of Mexico. Pliocene to Recent. Pleistocene, Labella, West Fla.

(*Volutella*) *ovuliformis* d'Orbigny, Moll. Cuba. 2, p. 101, pl. 20, f. 33-35, 1845; Dall, Bull. 37, U. S. N. M., p. 108, '89; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 395, 1901; Vaughan, 2nd Ann. Rept. Fla. G. S., p. 148, 1910.

Distribution.—Cape Fear, N. C., to Guadeloupe Isl. Also West Florida. Pleistocene, Manatee, West Fla.

(*Volutella*) *hadria* Dall, Bull. M. C. Z., 18, p. 142, 1889; Bull. 37, U. S. N. M., p. 108, '89.

lacrimula Dall, Pr. U. S. N. M., 6, p. 324, 1883. Not *lacrimula* Gould, Pr. Bost. Soc. N. H., 8, p. 281, 1862.

Distribution.—Cedar Keys, West Fla. Collected by Hemphill on mud flats. Also Charlotte Harbor, West Fla.

Genus **VOLUTA** Linnæus

virescens Solander, Dillw. Desc. Cat., 1, p. 562, Sowerby, Thes. 1, pl. 52, f. 78; Tryon, Man., 4, p. 84, pl. 24, f. 35, 1882; Dall, Bull. 37, U. S. N. M., p. 108, '89.

Distribution.—Texas to Cartagena, Colombia.

Genus **SCAPHELLA** Swainson

junonia Hwass, Chemnitz, Conch. Cab. 11, p. 16, pl. 177, f. 1703, 1704, pub. 1795; Dall, Bull. M. C. Z., 18, p. 148, pl. 34, f. 5, c-e, '89; Bull. 37, U. S. N. M., p. 110, pl. 34, f. 5, c-e, 1889.

Distribution.—North Carolina to Nassau. Also Gulf of Mexico, Lat. 25° N., Lon. 82° W., at 26 fms.

Genus **AURINIA** H. and A. Adams

dubia Broderip, Zool. Jour., 3, p. 81, pl. 3, f. 1, 1828, (as *Voluta*); Reeve, Conch. Icon., *Voluta*, pl. 22, f. 59, 1849; Tryon, Man., 4, p. 90, pl. 27, f. 77, 81, 1882; Dohrn, Jahrb. Mal. Ges., 6, p. 150, pl. 4, f. 1-3, '79; Dall, Bull. M. C. Z., 18, p. 151, '89; Bull. 37, U. S. N. M., p. 110, '89; Pr. U. S. N. M., 24, p. 504, pl. 29, f. 11, 1902.

Fusus tessellatus Schubert & Wagner, Suppl. Bd. Mart. und Chemn., Conch. Cab., 1829; Kiener and Reeve; but not of Zekeli and Pictet, 1852.

mutabilis Tuomey & Holmes, 1856. Not of Conrad, 1841.

Distribution.—Hatteras to Cape Florida. Gulf of Mexico between Mississippi delta and Cedar Keys, at 111 fms.

robusta Dall, Bull. M. C. Z., 18, p. 153, pl. 35, f. 2, '89; Bull. 37, p. 110, pl. 35, f. 2, '89.

Distribution.—Gulf of Mexico, Lat. 28° N., Lon. 86° W., at 280 fms. Also off Cuba, 119 fms.

Genus **MITRA** Lamarck

gemmata Sowerby, Thes. Conch., sp. 334, 1874; Tryon, Man., 4, p. 183, pl. 58, f. 688, '82; Dall, Bull. 37, U. S. N. M., p. 110, '89; (as var. of *hanleyi* Dohrn): Dall & Simpson, Bull. U. S. Fish Com., 1, p. 396, 1901.

Distribution.—Charlotte Harbor, West Florida, to Jamaica.

straminea A. Adams, Pr. Zool. Soc., p. 132, 1851; Sowerby, Thes. Conch., f. 561; Tryon, Man., 4, p. 140, pl. 41, f. 188, 1882; Dall, Bull. 37, U. S. N. M., p. 110, '89.

Distribution.—Gulf of Mexico, west of Florida.

wandoensis Holmes, Post-Plioc. Fos. S. Car., p. 77, pl. 12, f. 10, 1860, (as *Volutomitra*); Dall, Bull. 37, U. S. N. M., p. 110, '89; Tr. W. I. S., 3, p. 92, 1890.

Distribution.—Cape Hatteras to Florida Straits and West Florida, 14-80 fms. Very closely allied to and probably identical with *M. rushi* Dall, (Conch. Exch., 2, p. 9, 1887; Bull. M. C. Z., 18, p. 160, '89) from the Gulf of Mexico, 27 fms., U. S. Fish Com. Station 2372.

styria Dall, Bull. M. C. Z., 18, p. 159, pl. 15, f. 6, 1889; Bull. 37, U. S. N. M., p. 110, pl. 15, f. 6, '89.

Distribution.—Gulf of Mexico, west of Florida, 119 fms. Also Antillean,

(**Conomitra**) **blakeana** Dall, Bull. M. C. Z., 18, p. 163, 1889; Bull. 37, U. S. N. M., p. 110, '89.

Distribution.—Recent, Yucatan Strait, 640 fms. Closely related to the fossil species, *staminea* Conrad and *fusoides* Lea.

Genus **MITROMORPHA** A. Adams

pygmaea Dall, Tr. Wagner Inst. Sci., 3, p. 95, pl. 10, f. 3, 1890.

Distribution.—Type from Caloosahatchie marl, Fla., Pliocene. Also Bascom No. 1 well, near Mobile, Alabama, at 1500-1556 feet. Miocene. Not in the Recent fauna.

Genus **FASCIOLARIA** Lamarck

gigantea Kiener. Icon. Coq. Viv., p. 5, pl. 10, 11, 1840; Tryon, Man., 3, p. 75, pl. 60, f. 14, '81; Dall, Bull. 37, U. S. N. M., p. 112, '89; Tr. W. I. S., 3, p. 104, '90; Singley, 4th Ann. Rept. Tex. G. S., p. 334, '92; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 397, 1901; Vaughan, 2d Ann. Rept. Fla. G. S., p. 149, 1909; Johnson, Nautilus, p. 44, Oct., 1919.

Distribution.—Hatteras to Brazil. 0-10 fms. Gulf coast; West Florida; Point au Fer, La.; Corpus Christi and Matagorda Isl., Tex. Pleistocene, New Orleans pumping Station No. 7, North Creek and Manatee, West Fla. Pliocene, Caloosahatchie River marl.

tulipa Linnæus, Syst. Nat. ed X, p. 754, 1758, (as *Murex*); Kiener, Coq. Viv., p. 2, pl. 1, 2, 1840; Tryon, Man., 3, p. 74, pl. 59, f. 1-4, '81; Dall, Tr. W. I. S., 3, p. 101, pl. 7, f. 11, '90; Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903; Johnson, Nautilus, p. 46, Oct., 1919.

Distribution.—North Carolina to Colombia and Antilles. 0-10 fms. Gulf coast: Cedar Keys, St. Joseph's Bay and St. Marks, West Fla., Texas coast. Pleistocene, North Creek, Fla. Pliocene, Caloosahatchie beds.

distans Lamarck, An. s. Vert., 7, p. 119, 1822; Tuomey & Holmes, Pl. Fos. S. C., p. 151, pl. 30, f. 7, 1857; Hilgard, House of Rep., Ex. Doc. 1, pt. 2, p. 886, '78; Dall, Tr. W. I. S., 3, p. 102, pl. 7, f. 10, '90; Singley, 4th Ann. Rept. Geol. Surv. Tex., p. 334, '92; Mitchell, List. Tex. Sh., p. 16; Vaughan, Publ. No. 133, Carn. Inst., p. 171, 1910; Johnson, Nautilus, p. 47, Oct., 1919.

Distribution.—Hatteras to Yucatan 0-54 fms. Gulf coast: Cedar Keys, St. Marks, Fla.; Cameron and Chandeleurs,

La.; Galveston, Matagorda, Corpus Christi, and Mustang Isl., Texas. Pleistocene, New Orleans well of 1856, and pumping station No. 7; Orient and Labelle, West Fla. The Pliocene shell of the Caloosahatchie beds is the related, but slenderer, *F. apicina* Dall.

(**Mesorhytis**) **meekiana** Dall, Bull. M. C. Z., 18, p. 172, pl. 36, f. 7, 1889; Bull. 37, U. S. N. M., p. 112, pl. 36, f. 7, '89.

Distribution.—Gulf of Mexico, Blake Stations 16 and 20, at 292 and 220 fms. Also off Cuba, 400 fms. The first living species of *Mesorhytis* known, the type being the Cretaceous species, *gracilentis* Meek.

Genus **FUSINUS** Rafinesque

timessus Dall, Bull. M. C. Z., 18, p. 166, 1889; (as *Fusus*); Bull. 37, U. S. N. M., p. 112, '89.

Distribution.—Gulf of Mexico, between Mississippi delta and Cedar Keys, 60 fms.; between Cedar Keys and Dry Tortugas, 27 fms. Also near Cuba.

eucosmius Dall, Bull. M. C. Z., 18, p. 167, pl. 35, f. 5, 1889; Bull. 37, p. 112, pl. 35, f. 5, '89.

Distribution.—Gulf of Mexico, west of Florida. Also Barbados, 27-111 fms.

couei Petit, Journ de Conch., 4, p. 249, pl. 8, f. 1, 1853; Dall, Bull. M. C. Z., 18, p. 167, '89.

Distribution.—Gulf of Mexico, between Tampa and Dry Tortugas, 26 fms.

alcimus Dall, Bull. M. C. Z., 18, p. 170, 1889.

Distribution.—Gulf of Mexico, 100 miles north of Yucatan, 95 fms.

amiantus Dall, Bull. M. C. Z., 18, p. 169, pl. 15, f. 11, 1889; Bull. 37, U. S. N. M., p. 112, pl. 15, f. 11, '89.

Distribution.—Gulf of Mexico, Blake station 2, at 805 fms.

aepynotus Dall, Bull. M. C. Z., 18, p. 169, 1889.

Distribution.—Gulf of Mexico, 84 fms. Also Antillean.

amphiurgus Dall, Bull. M. C. Z., 18, p. 171, 1889.

Distribution.—Gulf of Mexico, Blake station 45, at 101 fms.

Genus **LEUCOZONIA** Gray

cingulifera Lamarck, 7, p. 107, 1822, (as *Turbinella*); Reeve, Conch. Icon., 4, pl. 3, f. 17, 1847; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 398, 1901.

Distribution.—Sarasota, Fla., to Texas and Brazil. Also Antillean.

ocellata Gmelin, Syst. Nat., p. 3488, 1792, (as *Buccinum*); Reeve, Conch. Icon., 4, pl. 8, f. 38, 1847; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 398, 1901.

Distribution.—Cedar Keys, Fla., to Guadeloupe, W. I.

Genus **BUSYCON** Bolten

pyrum Dillwyn, Desc. Cat. Rec. Sh., 1, p. 485, 1817; Dall, Bull. 37, U. S. N. M., p. 112, '89; Tr. W. I. S., 3, p. 112, '90; Singley, 4th Ann. Rept. G. S. Tex., p. 334, '92; Vanatta, Pr. A. N. S. Phila. p. 757, 1903; Vaughan, Publ. 133, Carn. Inst., p. 171, 1910.

Distribution.—Hatteras to Gulf of Mexico. Upper Miocene to Recent. Gulf coast: Cedar Keys, Fort Barranca, St. Mark's, Fla.; Cameron, &c. La.; Galveston, Matagorda, Corpus Christi, &c., Texas. Pleistocene of Louisiana at Grand Chenier and New Orleans pumping station No. 7. A high spired variety is found in abundance at Cedar Keys, Point au Fer, Cameron and Galveston, and in the Pleistocene of Grand Chenier, La., North Creek, Labelle, Manatee and Orient, West Fla.

canaliculatum Linnaeus, Syst. Nat., p. 753, 1758, (as *Murex*); Holmes, Post-Pl. Fos. S. C. p. 66, pl. 11, f. 3, 1859; Hil-

gard, House of Rep., Ex. Doc., 1, pt. 2, p. 886, '78; Dall, Bull. 37, U. S. N. M., p. 112, pl. 73, f. 1, '89; Clark, Pleistocene Md., p. 180, pls. 46, 47, 48, 1906; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 139, 1915.

Distribution.—Cape Cod to West Florida and Texas. Pliocene (Carolinas). Pleistocene, New Orleans well of 1856 (Hilgard).

perversum Linnæus, Syst. Nat., p. 1222, 1766, (as *Murex*); Tuomey & Holmes, Pl. Fos. S. C., p. 145, pl. 29, f. 3, 1856; Hilgard, House of Rep. Ex. Doc. 1, pt. 2, p. 886, '78; Dall, Tr. W. I. S., 3, p. 116, '90; Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903; Vaughan, Publ. 133, Carn. Inst., p. 171, 1910.

Distribution.—Hatteras to Cuba. Miocene (Carolinas) to Recent, 0-3 fms. Gulf coast: Cedar Keys, St. Marks, &c., Fla.; Point au Fer, Cameron, La.; Galveston and Corpus Christi, Tex. Exceedingly abundant in the Pleistocene of Grand Chenier, La., and found by Hilgard in the Lake Borgue borings; also of Manatee, Orient, and Labelle, West Fla.; Pliocene, Caloosahatchie beds, Fla.

carica Gmelin, Syst. Nat., p. 3545, 1792, (as *Murex*); Holmes, Post-Pl. Fos. S. C., p. 65, pl. 11, f. 1, 1859; Dall, Bull. U. S. N. M., p. 112, pl. 74, f. 1, '89; Clark, Pleistocene, Md., p. 179, pls. 43-45, 1906; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 139, 1915.

Distribution.—Massachusetts to the Antilles. 0-10 fms. Gulf coast, West Florida and Galveston, Tex.

eliceans Montfort, Conch. Syst. 303; Dall, Bull. 37, U. S. N. M., p. 112, '89.

Distribution.—South Carolina to Campeche. 0-5 fms.

Genus **MELONGENA** Schumacher

corona Gmelin, Syst. Nat., p. 3552, 1768; Tryon, Man., 3, p. 108, pl. 41, f. 199-203, 1881; Dall, Tr. W. I. S., 3, p. 121, '90;

Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903; Vaughan, 2d Ann. Rept. G. S. Fla., p. 148, 1909.

Distribution.—Florida Keys to Yucatan and the Antilles. Gulf coast: Cedar Keys, St. Marks, St. Joseph Bay, Fla.; La.; and Tex. Pleistocene, North Creek, Orient and La-belle, West Fla.

melongena Linnæus, Syst. Nat. ed XII., p. 1220; Tryon, Man., 3, p. 107, pl. 41, f. 197, 198, 1881; Dall, Bull. 37, U. S. N. M., p. 112, '89; Harris, Bull. Am. Pal., vol. 1, p. 101, '95.

Distribution.—Florida to Grenada. 0-50 fms. Gulf of Mexico, Texas region. Also Upper Miocene, Galveston well at 2448-2465 feet (Harris).

Genus **CANTHARUS** Bolten

tinctus Conrad, Pr. A. N. S. Phila., p. 25, pl. 1, f. 9, 1846, (as *Polia*); Dall, Bull. 37, U. S. N. M., p. 116, '89 (as *Tritonidea*); Dall and Simpson, Bull. U. S. Fish Com., 1, p. 399, 1901.

Distribution.—Hatteras to Vera Cruz. Gulf coast: Cedar Keys, Fla., and Matagorda, Texas. Pleistocene, North Creek, West Fla.

cancellaria Conrad, Pr. A. N. S. Phila., p. 25, pl. 1, f. 12, 1846; Dall, Pr. U. S. N. M., 6, p. 327, '83; Singley, 4th Ann. Rept. Tex. G. S., p. 334, '92; Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903; Vaughan, 2d Ann. Rept. Fla. G. S., p. 148, 1909.

Distribution.—Florida to Isthmus of Panama. Gulf coast: Cedar Keys, Fla.; Horn Isl., Miss.; Cameron, Point au Fer, Chandeleurs, La.; Galveston, Tex. Pleistocene, Grand Chenier and New Orleans pumping station No. 7, and of Orient, West Fla.

orbignyi Payraudeau, Cat. Moll. de Corse, p. 159, pl. 8, f. 4-6, 1826, (as *Buccinum*); Dall, Bull. 37, U. S. N. M., p. 116,

'89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 400, 1901.

Distribution.—Florida to Yucatan. 22-25 fms. Also Mediterranean.

limbatus Philippi, Abbild, 1, 3, pl. 1, f. 9, Tryon, Man., 3, p. 156, pl. 73, f. 257, 1881; Dall, Bull. 37, U. S. N. M., p. 116, '89.

Distribution.—Gulf of Mexico to Cuba.

Genus **PHOS** Montfort

candei d'Orbigny, Moll. Cuba, 2, p. 129, pl. 21, f. 23-25, 1845, (as *Cancellaria*); Arango, Fauna Mal. Cub., p. 201, 1878; Dall, Bull. 37, p. 116, 1889; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 401, 1901.

Distribution.—Hatteras to Colon and the Antilles. Gulf of Mexico, between Mississippi delta and Cedar Keys, at 88 fms. Synonyms, *fide* Dall, are *antillarum* Petit, 1853 and *grateloupensis* Petit, 1853.

parvus C. B. Adams, Contr. Conch., p. 59, 1850, (as *Triton*); Dall, Bull. 37, U. S. N. M., p. 116, 1889.

intricatus Dall, Pr. U.S.N. M., 6, p. 325, pl. 10, f. 9, '83.

Distribution.—Charlotte Harbor, West Fla., and Texas. Also Antillean.

galvestonensis Harris, Bull. Am. Pal. vol. 1, p. 102, pl. 4, f. 4, 5, 1895.

Distribution.—Upper Miocene, Galveston well at 2158-2871 feet.

Genus **NASSARINA** Dall

columbellata Dall, Bull. M. C. Z., 18, p. 182, 1889.

Distribution.—Cape Catoche, Yucatan.

grayi Dall, Bull. M. C. Z., 18, p. 183, pl. 32, f. 12a, 1889; Bull. 37, U. S. N. M., p. 116, pl. 32, f. 12a, '89.

Distribution.—Arrowsmith Bank, Yucatan, 130 fms. Also Antillean.

bushi Dall, Bull. M. C. Z., 18, p. 182, pl. 15, f. 12, 1889.

Distribution.—Gulf of Mexico, Blake station 5, 152-229 fms. Also off Sand Key, Fla. and Barbados.

Genus **ALECTRION** Montfort

vibex Say, Jour. A. N. S. Phila., (1), 2, p. 231, 1822, (as *Nassa*); Am. Conch., pl. 57, f. 2; Dall, Bull. 37, U. S. N. M., p. 116, pl. 50, f. 8, 1889; Singley, 4th Ann. Rept. Tex. G. S., p. 335, 1892; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 134, 1915.

fretensis Perkins, Pr. Bost. Soc., 13, p. 117, 1869.

Distribution.—Cape Cod to Colon. Gulf coast: Cedar Keys and St. Mark's, Fla., Point au Fer, La., Galveston, Corpus Christi, Tex. Pleistocene, New Orleans pumping station No. 7; Manatee, Orient and Labelle, West Fla. Pliocene, Caloosahatchie.

ambiguus Montagu, Test. Brit., pl. 9, f. 7, 1803, (as *Buccinum*); Dall, Bull. M. C. Z., 18, p. 184, '89; Not *ambigua* Dunker (West African), which is *incrassata* Strom.

alba Say, 1826; *candidissima* C. B. Adams, Krebs Cat., p. 32.

Distribution.—North Carolina to West Florida and Barbados. Yucatan Strait, 640 fms. Variety *antillarum* d'Orb., Caloosahatchie Pliocene.

acutus Say, Jour. A. N. S. Phila., 2, p. 234, 1822, (as *Nassa*); Holmes, Post-Pl. Fos. S. C., p. 72, pl. 12, f. 3, 1860, (as *Buccinum*); Hilgard, House of Rep. Ex. Doc. 1, pt. 2, p. 886, '78; Dall, Bull. 37, U. S. N. M., p. 116, '89; Harris, Bull. Am. Pal., vol. 1, p. 102, '95; Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903; Deussen, Water Supply Pa. 335, p. 77, 1914.

Distribution.—Carolinas to Barbados. Gulf coast: Recent, St. Joseph's Bay and Crooked Isl., West Fla.; Point au Fer,

Cameron, La.; Galveston and Corpus Christi, Tex. Pleistocene, Knapp's wells, Terrebonne Parish, No. 1 at 1600-2443 feet, No. 2, 1050-1842, No. 3, 58-1839 feet, New Orleans ar.esian well of 1856, Lake Borgne borings. Pliocene, New Orleans Gymnasium Club well at 1200 feet. Upper Miocene, Galveston well, 2871 feet. Miocene, Gilbert well No. 10, Bateson, Texas at 323 feet.

consensus Ravenel, Pr. A. N. S. Phila., p. 43, 1861; Dall, Bull. M. C. Z., 18, p. 185, '89.

Distribution.—North Carolina to Florida. 8-49 fms. Gulf coast 20 miles off Charlotte Harbor, W. Fla., at 13 fms.

hotessieri d'Orbigny, Moll. Cuba, 2, p. 142, 1845, Atlas, pl. 21, f. 40-42, (as *Nassa*); Dall, Bull. M. C. Z., 18, p. 185, 1889; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 403, 1901.

Distribution.—Gulf of Mexico, Blake station 36, at 84 fms. Also Hatteras and Sombrero, 30-85 fms.

galvestonensis Harris, Bull. Am. Pal., vol. 1, p. 101, pl. 4, f. 2, 1895.

Distribution.—Upper Miocene, Galveston well at 2410-2871 feet.

trigalvestus Harris, Bull. Am. Pal., vol. 1, p. 101, pl. 4, f. 3, 1895.

Distribution.—Upper Miocene, Galveston well at 2158-2871 feet.

obsoletus Say, Jour. A. N. S. Phila., (1) 2, p. 232, 1822, (as *Nassa*); Gould, Inv. Mass., pl. 15, f. 210; Dall, Bull. 37, U. S. N. M., p. 116, pl. 50, f. 9, 1889; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 135, 1915; Dall, Bull. 112, U. S. N. M., p. 103, 1921.

Distribution.—Nova Scotia to Tampa, West Fla. Also San Francisco Bay, (introduced with oysters from the Atlantic).

beaumontensis Aldrich, Bull. No. 1, Univ. Texas, July, 1901: Nautilus, p. 74 and figs., Nov. 1901, (as *Nassa*).

Distribution.—Pleistocene. Spindle Top Hill oil well, near Beaumont, Texas, at 390 feet.

Genus **STROMBINA** Moersch

gibberula var. **galvestonensis** Harris, Bull. Am. Pal., vol. 1, p. 103, pl. 4, f. 6, 1895.

Distribution.—Upper Miocene, Galveston well at 2410-2871 feet.

Note—The typical form of *gibberula* Sowerby, (Pr. Zool. Soc., p. 115, 1832), is recent on the Pacific coast of Central America southward to Paiti, Peru.

Genus **ANACHIS** H. and A. Adams

avara Say, Jour. A. N. S. Phila., 2, p. 230, 1882, (as *Columbella*); Tuomey and Holmes, Pl. Fos. S. C. p. 139, pl. 28, f. 12, 1857; Dall, Bull. 37, U. S. N. M., p. 116, pl. 50, f. 12, '89; Vanatta, Pr. A. N. S. Phila., 55, p. 757, 1903; Johnson, Occ. Pa. Bost. Soc. N. H., p. 132, 1915.

Distribution.—Recent and Pleistocene. Massachusetts to Florida Keys. Gulf coast: Crooked Isl., West Fla., and Texas. Pleistocene, Lake Borgne borings, La., and North Creek, West Fla.

avara var. **semiplicata** Stearns, Pr. A. N. S. Phila., p. 344, 1873, (as *Columbella*); Tryon, Man., 5, p. 159, pl. 55, f. 70, 71, '83; Dall, Bull. 37, U. S. N. M., p. 116, '89.

Distribution.—Cedar Keys and Charlotte Harbor, West Fla.; Louisiana; Corpus Christi, Texas.

avara var. **similis** Ravenel, Pr. A. N. S. Phila., p. 11, 1861, (as *Columbella*); Tryon, Man., 5, p. 159, pl. 55, f. 69, '83; Dall, Bull. 37, p. 116, '89.

Distribution.—Carolinas to West Florida, Galveston and Yucatan.

avara var. **translirata** Ravenel, Pr. A. N. S. Phila., p. 42, 1861; Tryon, Man., 5, p. 159, '83; Dall, Bull. 37, p. 116, '89.

Distribution.—New York to West Florida, Louisiana and Yucatan.

catenata Sowerby, Pr. Zool. Soc., p. 52, 1844; Conch. Icon., 11, pl. 21, f. 119, 1858; Tryon, Man., 5, p. 179, pl. 58, f. 51, '83; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 404, 1901.

Distribution.—Jamaica to Porto Rico. A shell closely resembling this species, and probably identical with it, is in our collection. As far as I know, this is the first time that *catenata* has been found on the Gulf coast.

obesa C. B. Adams, Pr. Bost. Soc. N. H., 2, p. 2, 1845, (as *Buccinum*); Tryon, Man., 5, p. 169, pl. 57, f. 7 and 20, '83; Dall, Bull. 37, p. 118, '89; Singley, 4th Ann. Rept. Tex. G. S. p. 335, '92; Harris, Bull. Am. Pal., vol. 1, p. 102, '95; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903.

ornata Ravenel, *cancellata* Gaskoin. *A. ostreicola* Melvell is a dark brown or black variety.

Distribution.—Hatteras to St. Thomas, W. I. and Vera Cruz. Pliocene to Recent. Gulf coast: St. Joseph's Bay, Crooked Isl., West Fla.; Point au Fer, Cameron and Chandeleurs, La.; Galveston and Corpus Christi, Texas. Pleistocene, Grand Chenier, Teche No. 1 well, Jennings, La., at 1158-1199 feet, Knapp's well, Terrebonne Parish, No. 1 at 1050-1800 feet, No. 3 at 1150-1440 feet, Galveston well at 440-446 feet. Pliocene, New Orleans Gymnasium Club well at 1200 feet.

amphisella Dall, Bull. M. C. Z., 9, p. 91, 1881; 18, p. 188, pl. 19, f. 10c, '89; Bull. 37, U. S. N. M., p. 118, pl. 19, f. 10c, '89.

Distribution.—Yucatan Strait 43—640 fms.

hotessieriana d'Orbigny, Moll. Cuba, 2, p. 138, pl. 21, f. 37-39; Tryon, Man., 5, p. 144, pl. 52, f. 82, 1883; Dall, Bull. 37, p. 118, '89.

Distribution.—Tampa, West Fla., to Guadeloupe, W. I. Very closely allied to the following species.

preti Duclos, Chenu, Conch. Ill., pl. 16, f. 7, 8; Tryon, Man., 5, p. 144, pl. 52, f. 76, 1883.

Note.—C. B. Adams' *albella* [Conch. Contr., p. 63, 1850, (as *Pleurotoma*); Dall Bull. U. S. N. M., p. 118, 1889] an unfigured species, is *vide* Dall and Simpson (1901) merely a mutation of *preti*, as shown by cotypes from Adams.

Distribution.—Variety *albella*, Cape Fear, N. C., to West Florida and Jamaica.

Genus **COLUMBELLA** Lamarck

mercatoria Linnæus, Syst. Nat. ed. X, p. 730, 1758, (as *Voluta*); Kiener, Coq. Viv., *Columbella*, p. 23, pl. 5, f. 1, 1841; Dall, Bull. 37, p. 116, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 403, 1901.

Distribution.—Cape Lookout, N. C., to Barbados and West Florida. Pleistocene of Costa Rica.

rusticoides Heilprin, Tr. Wagner Inst. Sci., 1, p. 81, pl. 8, f. 9, 1887; Pr. A. N. S. Phila., p. 52, pl. 3, f. 2, '87; Dall, Tr. W. I. S., 3, p. 135, '90; Vaughan, Publ. No. 133, Carn. Inst., p. 171, 1910.

Distribution.—Cedar Keys and St. Marks, West Florida to Cuba. Pleistocene, Labelle, West Fla. Pliocene, Caloosahatchie beds, West Fla.

Genus **ASTYRIS** H. and A. Adams

lunata Say, Jour. A. N. S. Phila., 5, p. 213, 1826, (as *Nassa*) Tuomey and Holmes, Pl. Fos. S. C. p. 136, pl. 28, f. 6,

1857, (as *Buccinum*); Hilgard, House of Rep. Ex. Doc., 1, pt. 2, p. 886, 1878; Dall, Bull. 37, U. S. N. M., p. 118, pl. 50, f. 16, '89; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 133, 1915.

Buccinum zonalis Linsley, Am. Jour. Sci., (1); 48, p. 285, 1845.

Distribution.—Canada to Florida Keys. 0-12 fms. Gulf coast: Cedar Keys, Fla.; Chandeleurs, La.; Galveston and Corpus Christi, Tex. Pleistocene. Lake Borgne borings, La., Knapp's wells, Terrebonne Parish, No. 2 at 1050-1790, No. 3 at 258-1375 feet. Also of North Creek, Manatee and Labelle, West Fla. Pliocene of the Caloosahatchie, Fla.

duclosiana d'Orbigny, Moll. Cuba, 2 p. 136, pl. 21, f. 31-33, '45. (Not of Sowerby, 1847, which is a Javan shell); Dall, Bull. 37, U.S.N.M., p. 118, '89, (as *lunata* var.); Dall and Simpson, Bull. U. S. Fish Com., 1, p. 405, 1901.

Distribution.—Hatteras to Barbados and Tampa, West Fla. 0-63 fms.

diaphana Verrill, Tr. Conn. Acad., 5, p. 513, pl. 58, f. 2, 1882; Dall, Bull. M. C. Z., 18, p. 191, pl. 35, f. 9, '89; Bull. 37, U. S. N. M., p. 118, pl. 35, f. 9, '89.

Distribution.—Rhode Isl. to Gulf of Mexico between Mississippi delta and Cedar Keys, 64-487 fms.

Genus **NITIDELLA** Swainson

parvula Dunker, Zeitschr. Mal., p. 64, 1847, (as *Buccinum*); Tryon, Man., 5, p. 122, pl. 48, f. 77, '83; Dall, Bull. 37, U. S. N. M., p. 118, '89.

Distribution.—Gulf of Mexico, Texas region, to Barbados.

Genus **AESOPUS** Gould

stearnsi Tryon, Man. Conch., 5, p. 179, 1883, (as *Seminella*); Dall, Bull. M. C. Z., 18, p. 194, pl. 29, f. 5, '89; Bull. 37, p. 118, pl. 29, f. 5, '89.

filosa Stearns, Pr. A. N. S. Phila., p. 345 & fig., 1873, (as *Nitidella*). Not *Aesopus filusus* Angas, 1867, cf. *Columbella peculiaris* Guppy, Geol. Mag., London, pl. 18, f. 20, 1874.

Distribution.—Type locality, Tampa Bay, Fla. Also off Cape Fear, N. C. 15-17 fms. Pliocene of the Caloosahatchie, Fla.

Genus **MUREX** Linnæus

beaui Fischer and Bernardi, Jour. de Conch., 5, p. 295, pl. 8, f. 1, 1856; Dall, Bull. M. C. Z., 18, p. 195, '89; Bull. 37, U. S. N. M., p. 118, '89.

Distribution.—Gulf of Mexico between Mississippi delta and Cedar Keys, at 111 fms. Also Florida Reefs and Guadeloupe. 82-183 fms.

cabriti Bernardi, Jour. de Conch., 7, p. 301, pl. 10, f. 3, 1858; Dall, Bull. 37, U. S. N. M., p. 118, '89.

Distribution.—Hatteras to Barbados, Gulf of Mexico, Blake station 36, at 84 fms.

messorius Sowerby, Pr. Zool. Soc., p. 137, 1840; Conch. Illust., *Murex*, f. 93, 1839; Reeve, Conch. Icon., *Murex*, f. 90, '45; Dall, Tr. W. I. S., 3, p. 139, '90; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 407, 1901.

Distribution.—Gulf coast, Cedar Keys, Fla. and Texas, to Colon. 2-30 fms. Pleistocene, New Orleans pumping station No. 7. Pliocene of the Caloosahatchie River, Fla.

(**Chicoreus**) **rufus** Lamarck, Anim. s. Vert., ed. I, 7, p. 162, 1882; Tryon, Man., 2, p. 90, pl. 15, f. 148, '80; (After Reeve, f. '19); Dall, Bull. 37, U. S. N. M., p. 118, '89.

sexcostata Emmons, Geol. N. Car., p. 248, f. 106, 1858.

Distribution.—Cape Fear, N. C., to Cartagena, Colombia, and Antilles. Also West Fla. 5-30 fms. Pliocene Caloosahatchie beds, Fla.

(**Chicoreus**) **brevifrons** Lamarck, Anim. s. Vert., ed. I, 7, p. 161, 1822; Reeve, Conch. Icon., 3, pl. 3, f. 13, 1845; Tryon, Man., 2, p. 95, f. 172, 1880; Dall, Bull. 37, U. S. N. M., p. 118, '89; Tr. W. I. S., 3, p. 140, '90; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 407, 1901.

Distribution.—South Carolina to Cartagena, Colombia. Gulf coast, West Fla. Pliocene, Caloosahatchie beds.

(**Phyllonotus**) **pomum** Gmelin, Syst. Nat., p. 3527, 1792; Reeve, Conch. Icon., 3, pl. 9, f. 35, 1845; Tryon, Man., 2, p. 97, pl. 20, f. 182, '80; Dall, Bull. 37, U. S. N. M., p. 120, pl. 16, f. 2, '89; Tr. W. I. S., 3, p. 142, '90; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 408, 1901.

oculatus Reeve, 1845; *asperrimus* d'Orbigny, 1853; *mexicanus* Petit, 1852; *imperialis* Swainson; *globosa* Emmons, 1858.

Distribution.—North Carolina to Venezuela. Gulf coast at various localities, West Fla.; Cameron and Chandeleurs, La., and Texas. Pleistocene, New Orleans pumping station No. 7. Pliocene, Caloosahatchie River, Fla. Lower Miocene, Antilles.

(**Phyllonotus**) **fulvescens** Sowerby, Conch. Illust., f. 30; Kobelt, Jahrb. Mal. Gesell., p. 155, '77; Dall, Bull. 37, U. S. N. M., p. 120, '89, Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903.

Distribution.—Hatteras and the Gulf coast at Indian Pass, West Fla.; Point au Fer, Chandeleurs, La.; Galveston, Corpus Christi and Quintana, Texas. Pleistocene, Grand Chenier, La., Knapp's wells, Terrebonne Parish, No. 1 at 2000-2150 feet, No. 3 at 790-830 feet.

Genus **FAVARTIA** Jousseaume

cellulosa Conrad, Pr. A. N. S. Phila., 3, p. 25, 1846, (as *Murex*); Dall, Bull. M. C. Z., 18, p. 210, pl. 16, f. 1, '89; (as *Ocinebra*); Bull. 37, U. S. N. M., p. 120, pl. 16, f. 1, '89; Tr. W. I. S., 3, p. 150, '90.

nuceus Moerch, Cat. Kierulf, p. 14, pl. 1, f. 9, '50; Cat. Yoldi, p. 95, 1852, (as *Ocinebra*).

Distribution.—Cape Lookout, N. C., to the Antilles and Vera Cruz. Gulf coast, Tampa Bay (type locality), Cedar Keys and Texas. Pliocene of the Caloosahatchie.

cellulosa var. **levicula** Dall, Bull. M. C. Z., 18, p. 211, 1889; Bull. 37, p. 120, '89, (as *Ocinebra*).

Distribution.—Cape Lookout, N. C., to West Florida and Yucatan. 22-37 fms.

intermedia C. B. Adams, Contr. Conch., p. 60, 1850, (as *Murex*); Dall, Bull. 37, U. S. N. M., p. 120, '89, (as *Ocinebra*); Dall, and Simpson, Bull. U. S. Fish Com., 1, p. 408, 1901.

Distribution.—Key West to St Thomas and Texas region of the Gulf. Variety *alta* Dall, Caloosahatchie Pliocene.

Genus **UROSALPINX** Stimpson

cinereus Say, Jour. A. N. S. Phila., 2, p. 236, 1822, (as *Fusus*); Amer. Conch., 3, pl. 29, 1831; Gould, Inv. Mass., p. 370, f. 637, (as *Buccinum*); Tryon, Man., 2, p. 152, pl. 39, f. 3, '80; Dall, Pr. U. S. N. M., 6, p. 326, 1883; Bull. 37, U. S. N. M., p. 120, pl. 50, f. 6, '89; Johnson, Occ. Pa. Bost. Soc. N. H., p. 132, 1915; Dall, Bull. 112, U. S. N. M., p. 109, 1921.

Distribution.—Nova Scotia to Florida. Gulf coast, Cedar Keys (Dall); Pleistocene, Lake Borgne borings, La., (Hilgard). Also on the Californian coast (introduced with oysters).

perrugatus Conrad, Amer. Jour. Sci., p. 397, 1846, (as *Fusus*); Dall, Bull. M. C. Z., 18, p. 214, '89; Bull. 37, p. 120, '89; Vaughan, 2d Ann. Rept. Fla. G. S., p. 148, 1909.

Distribution.—West Florida from Cedar Keys to Key West. Type locality, Manatee River, West Fla. Pleistocene, North Creek and Orient, West Fla.

tampaensis Conrad, Pr. A. N. S. Phila., 3, p. 25, 1846, (as *Murex*); Dall, Bull. M. C. Z., 18, p. 214, '89; Bull. 37, U. S. N. M., p. 112, '89.

Distribution.—West Florida from Cedar Keys to Sarasota. Pleistocene, North Creek, West Fla.

Genus **MURICIDEA** Swainson

multangula Philippi, Zeitschr. fur Malak, 5, p. 25, 1849, (as *Fusus*); Abbild. und Beschr., 3, p. 117, pl. 24, f. 6, 1850; Dall, Bull. 37, U. S. N. M., p. 120, pl. 76, f. 1, '89; Tr. W. I. S., 3, p. 149, 1890; Pr. U. S. N. M., 24, p. 505, pl. 30, f. 1, 1902.

hemphilli Dall, Pr. U. S. N. M., 6, p. 327, 1883.

Distribution.—Cape Fear, N. C., to Yucatan and the Northern Antilles, Gulf coast, Cedar Keys and Texas. 0-95 fms. Pliocene, Caloosahatchie beds.

ostrearum Conrad, Pr. A. N. S. Phila., 3, p. 25, 1846, (as *Murex*); Dall, Pr. U. S. N. M., 24, p. 505, pl. 30, f. 2, 1902.

floridana Conrad, Am. Jour. Conch., 5, p. 106, pl. 12, f. 4, 1869, (as *Urosalpinx*); Dall, Pr. U. S. N. M., 6, p. 326, '83; Bull. M. C. Z., 18, p. 212, '89; Tr. W. I. S., 3, p. 149, '90, Vaughan, 2d Ann. Rept. Fla. G. S., p. 148, 1909.

Distribution.—East Florida south of St. Augustine and Gulf of Mexico, Cedar Keys, Fla., to Yucatan. 0-13 fms. Rocky shores. Pleistocene, Manatee and Orient, West Fla. Pliocene, Caloosahatchie beds, Fla. Resembles *Urosalpinx perrugatus* Conrad, but is slenderer and has a very different operculum.

hexagona Lamarck, Anim. s. Vert., 7, p. 169, 1822, (as *Murex*); Reeve, Conch. Icon., 3, pl. 27, f. 120, 1845; Dall, Bull. 37, U. S. N. M., p. 120, '89; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 409, 1901.

Distribution.—Gulf of Mexico, Texas region to St. Thomas, W. I. 25 fms. Genotype.

philippiana Dall, Bull. M. C. Z., 18, p. 213, 1889; Bull. 37, U. S. N. M., p. 120, '89; Pr. U. S. N. M., 24, p. 504, pl. 29, f. 5, 1902.

Distribution.—Off Cape Catoche, Yucatan, and also Key West, Fla. 20-25 fms. Coral sand.

Genus **EUPLEURA** H. and A. Adams

caudata Say, Jour. A. N. S. Phila., 2, p. 236, 1822, (as *Ranella*); Stimpson, Am. Jour. Conch., 1, p. 58, pl. 8, f. 5, 1865; Hilgard, House of Rep. Ex. Doc. 1, pt. 2, p. 886, '78; Dall, Pr. U. S. N. M., 6, p. 326, '83; Bull. 37, U. S. N. M., p. 120, pl. 50, f. 11, '89; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 130, 1915.

Distribution.—Massachusetts to Florida. 1-3 fms. Gulf coast: Cedar Keys, St. Mark's, Charlotte Harbor, Fla.; Chandeleurs, La. Pleistocene, Lake Borgne borings and New Orleans well of 1856 (Hilgard), and of Labelle, West Fla.

caudata var. **sulcidentata** Dall, Tr. W. I. S., 3, p. 144, 1890.

Ranella clathrata "Gray" Calkins, Pr. Dav. Acad. Sci., p. 234, 1878.

muriciformis Tryon, Man., 2, p. 158, (in part). Not of Broderip.

Distribution.—Gulf coast of Florida, Pleistocene of Southwest Fla.

Genus **TROPHON** Montfort

(**Boreotrophon**) **lacunellus** Dall, Bull. M. C. Z., 18, p. 205, pl. 15, f. 4, 1889; Bull. 37, U. S. N. M., p. 120, pl. 15, f. 4, '89.

Distribution.—Cape Fear, N. C., to Dominica. Also West Florida. 227-769 fms.

Genus **THAIS** Bolten

patula Linnæus, Syst. Nat., ed. X, p. 739, 1758, (as *Buccinum*); Reeve, Conch. Icon., 3, pl. 1, f. 3, 1846; Tryon, Man., 2, p. 159, pl. 43, f. 19-22, '80; Dall, Bull. 37, U. S. N. M., p.

122, '89; (as *Purpura*); Dall, Pr. U. S. N. M., 37, p. 221, 1910.

Distribution.—East and West Florida to Texas, the Antilles and Brazil. Also Pacific, Gulf of California to Panama and Peru.

haemastoma Linnaeus Syst. Nat., ed. XII, p. 1202; Reeve, Conch. Icon., 3, f. 21, 1846; Tryon, Man., 2, p. 167, pl. 49, f. 80, 83, 1880; Dall, Bull. 37, U. S. N. M., p. 122, pl. 34, f. 3, 4, pl. 46, 1a-2b, '89; Singley 4th Ann. Rept, Tex. G. S., p. 336, '92; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903. (All as *Purpura*).

Distribution.—Cape Hatteras to Trinidad Isl. Gulf coast Cedar Keys and Ft. Barranca, Fla.; Horn Isl., Miss.; Point au Fer, La.; Galveston, Corpus Christi, Tex. Pleistocene, Grand Chenier, La., New Orleans pumping station No. 7, Knapp's No. 3 well, Terrebonne Parish, at 1400-1440 feet.

haemastoma var. **floridana** Conrad, Jour. A. N. S. Phila., 7, p. 265, pl. 20, f. 21, 1837; Tryon, Man., 2, p. 167, pl. 49, f. 85, pl. 50, f. 86; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 411, 1901. (All as *Purpura*).

Distribution.—Florida to the Antilles, Gulf coast, West Fla., Cameron, Chandeleurs, La.; Matagorda Bay, Tex. Pleistocene of Grand Chenier, La., (very abundant and showing the same mutations as the living shells).

deltoidea Lamarck, Anim. s. Vert., 7, p. 247, 1822; Reeve, Conch. Icon., 3, pl. 4, f. 18, 1846; Kuster, Conch. Cab., pl. 32, f. 2; Tryon, Man., 2, p. 163, pl. 47, f. 55, 1880; Dall, Bull. 37, U. S. N. M., p. 122, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 411, 1901. (All as *Purpura*).

Distribution.—Florida to St. Vincent, W. I., Gulf coast, West Fla. and Tex.

Genus **SISTRUM** Montfort

nodulosum C. B. Adams, Pr. Bost. Soc. N. H., p. 2, 1845, (as *Purpura*); Tryon, Man., 2, p. 190, pl. 59, f. 275, 1880; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 411, 1901.

Distribution.—Cape Romano, southwest Florida, to Colon. Also Antillean.

roseum Reeve, Conch. Icon., sp. 46, 1846; Dall, Bull. 37, U. S. N. M., p. 122, 1889.

Distribution.—Gulf of Mexico, Texas region, to Barbados. The rosy color is thought to be caused by an encrusting hydrozoon.

Genus **CORALLIOPHILA** H. and A. Adams

abbreviata Lamarck, Enc. Méth., pl. 435, f. 2a-b, 1795, (as *Pyrgula*); Anim. s. Vert., 7, p. 146, 1822.

galca Chemnitz.

Distribution.—Cape Fear, N. C., to the Antilles. Gulf coast, West Florida. Pliocene, Caloosahatchie beds.

lactuca Dall, Bull. M. C. Z., 18, p. 220, pl. 16, f. 6, 1889.

Distribution.—Gulf of Mexico, Blake station 5, in 152-229 fms. Also off Fernandina, Fla.

deburghiae Reeve, Pr. Zool. Soc., p. 208, pl. 38, f. 3, 1857, (as *Rhizochilus*); Tryon, Man., 2, pl. 66, f. 383, 1880, (as *Latiaxis*); Dall, Bull. U. S. N. M., p. 122, pl. 16, f. 5, '89.

Distribution.—Cape Hatteras to Barbados. Also West Fla. 56-878 fms.

Genus **EPITOMIUM** Bolten

angulatum Say, Amer. Conch., No. 3, pl. 27, (two upper figs) 1831, (as *Scalaria clathrus* var.); Hilgard, House of Rep. Ex. Doc. 1, pt. 2, p. 887, 1878; Dall, Bull. 37, U. S. N. M., p. 122, '89; Singley, 4th Ann. Rept. Tex. G. S., p. 336, '92; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 103, 1915.

Distribution.—Connecticut to West Fla., Point au Fer., La., and Galveston, Tex. Pleistocene, Lake Borgne, La., borings.

sayanum Dall, Bull. M. C. Z., 18, p. 313, 1889, (as *Scala*); Bull. 37, U. S. N. M., p. 122, pl. 50, f. 10, '89; Tr. W. I. S., 3, p. 158, '90; Singley, 4th Ann. Rept. Tex. G. S., p. 336, 1892.

clathrum Say (in part).

Distribution.—Virginia to Florida Keys, West Florida, Cameron, La., Corpus Christi and Galveston, Texas. Pleistocene, Grand Chenier, La. Pliocene, Caloosahatchie River, Florida.

tenue Sowerby, Pr. Zool. Soc., p. 110, 1844, (as *Scala*); Dall, Bull. 37, U. S. N. M., p. 122; 1889.

Distribution.—Gulf of Mexico, Texas and Cameron (?) La., to St. Thomas, W. I.

nitidellum Dall, Bull. M. C. Z., 18, p. 314, 1889, (as *Scala*); Bull. 37, U. S. N. M., p. 124, '89; Pr. U. S. N. M., 24, p. 505, pl. 30, f. 8, 1902.

Distribution.—Hatteras to Cedar Keys, Fla. 32-63 fms.

scipio Dall, Bull. M. C. Z., 18, p. 310, 1889; Bull. 37, U. S. N. M., p. 124, '89, (as *Scala*); Pr. U. S. N. M., 24, p. 506, pl. 29, f. 10, 1902.

Distribution.—Hatteras, N. C., to Texas and Vera Cruz, Mexico. 10-16 fms. Pink with white varices.

denticulatum Sowerby, Thes. Conch., p. 87, pl. 32, f. 25, 26, '47; Tryon, Man., 9, pl. 13, f. 100, 1887; Dall, Bull. 37, U. S. N. M., p. 124, '89.

Distribution.—Hatteras to West Florida and the Bahamas.

lineatum Say, Jour. A. N. S. Phila., 2, p. 242, 1822, (as *Scal-laria*); Hilgard, House of Rep. Ex. Doc. 1, pt. 2, p. 887, '78; Tryon, Man., 9, p. 79, pl. 16, f. 14, 87; Dall, Tr. W. I. S.,

3, p. 158, '90; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 102, 1915.

Distribution.—Massachusetts to Charlotte Harbor and Cedar Keys, West Fla.; Cameron, Point au Fer, La.; Galveston and Corpus Christi, Tex. Pleistocene. Grand Chenier, La., and Knapp's No. 2 well Terrebonne Parish, at 1550-1570, 1731-1739 feet. Pliocene Caloosahatchie beds, Fla.

turriculum Sowerby, Thes. Conch., 1, p. 92, pl. 33, f. 61, pl. 34, f. 88, 1847; Singley, 4th Ann. Rept. Tex. G. S., p. 336, 1892.

Distribution.—Cape Hatteras to Haiti. 16-32 fms. Gulf coast at Galveston (Singley). Pliocene of the Caloosahatchie River, Fla.

mittelli Dall, Nautilus, 9, p. 112, Feb. 1896; Pr. U. S. N. M., 24, p. 506, pl. 30, f. 3, 4, 1902.

Distribution.—Matagorda Island, Texas. Collected by J. D. Mitchell.

cochlea Sowerby, Thes. Conch., *Scalaria*, p. 103, pl. 35, f. 142 (only) 1847; Moersch, Jour. A. N. S. Phila., 8, p. 205, 1876; Tryon, Man., 9, p. 81, pl. 17, f. 24, 1887; Dall, Pr. U. S. N. M., 24, p. 506, pl. 30, f. 7, 1902.

Distribution.—Hatteras, N. C., to Tortola. W. I. Gulf of Mexico near Cedar Keys, Fla., at 25 fms. Sowerby's reference to its occurrence at Loando, Portuguese West Africa, is questionable.

galvestonense Harris, Bull. Am. Pal., vol. 1, p. 103, pl. 4, f. 7, 1895.

Distribution.—Upper Miocene, Galveston well at 2552-2871 feet.

Note.—The following species of *Epitomium* have been reported by Singley from the Texas coast:—*sericifila* Dall,

(Bull. M. C. Z., 18, p. 313, 1889); *multistriatum* Say (Jour. A. N. S. Phila., 5, p. 208, 1826; Dall, Bull. 37, U. S. N. M., pl. 50, f. 5, 1889); *conlorquatum* Dall, (Bull. M. C. Z., 18, p. 318, pl. 18, f. 9, 1889); and *modestum* C. B. Adams (Jamaica Shells). These species are not cited, as far as I am aware, by other authors from Gulf coast. They are not in our collections from the Gulf and are noted here solely *fide* Singley, (Fourth Ann. Rept. Tex. Geol. Surv., p. 336, 1892).

Genus **JANTHINA** Bolten

janthina Linnæus, Syst. Nat., ed. X., p. 772, 1758, (*Helix*); d'Orbigny, Voy. Am. M^er., p. 413, pl. 61, f. 8-10, 1841; Dall, Pr. U. S. N. M., 37, p. 223, 1910; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 101, 1915.

fragilis Lamarck, An. s. Vert., p. 89, 1801; Tryon, Man., 9, p. 36, pl. 9, f. 4, 1887; Singley, 4th Ann. Rept. G. S. Texas, p. 336, 1892; Bartsch, Bull. 91, U. S. N. M., p. 65, 1915.

Distribution.—Nantucket, Mass., to Colon; and West Fla. to Quintana and Galveston, Texas. Pelagic. Also Pacific Ocean, Lat. 42° N. to 36° S., and Indian Ocean, Port Alfred, S. E. Africa.

pallida Harvey, Thompson's Ann. Phil. and Nat. Hist., 5, p. 96, pl. 2, f. 2, 1841; Tryon, Man., 9, p. 37, pl. 10, f. 15, 1887.

Distribution.—Europe, the West Indies and Gulf of Mexico. Cameron, La. (washed ashore). Also tropical waters of the Pacific Ocean. Pelagic,

globosa Swainson, Zool. Illust. (1), 11, pl. 85, 1822; Tryon, Man., 9, pl. 10, f. 12, '87; Singley, 4th Ann. Rept. Tex., p. 336, '92; Mitchell, List Texas Shells; Bartsch, Bull. 91, U. S. N. M., p. 65, 1915.

Distribution.—Gulf Stream, Pelagic. Washed ashore at Quintana, Tex. and West Fla. Also Port Alfred, S. E. Africa.

communis Lamarck, An. s. Vert., ed. Desh., IX, p. 4; Tryon,

Man., 9, pl. 9, f. 99, 1887; Dall, Bull. 37, U. S. N. M., p. 126, '89; Mitchell, List. Tex. Sh.; Bartsch, Bull. 91, U. S. N. M., p. 65, 1915.

Distribution.—Nantucket to Colon, West Florida, Matagorda Bay and Mustang Isl., Tex. Pelagic. Also Indian Ocean, Port Alfred, S. E. Africa.

Genus **MELANELLA** Bowdich

- (*Eulima*) *conoidea* Kurtz and Stimpson, Pr. Bost. Soc., N. H., 4, p. 115, 1851; Dall, Pr. U. S. N. M., 6, p. 330, 1883; Tryon, Man., 8, p. 273, pl. 49, f. 40, '86; Dall, Tr. W. I. S., 3, p. 159, pl. 5, f. 11, 1890; Singley, 4th Ann. Rept. Tex., p. 336, '92; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 91, 1915.

Distribution.—Hatteras to the Autilles. Gulf coast: Cedar Keys, Fla.; Galveston and Corpus Christi, Tex. Pliocene, Caloosahatchie beds, Fla.

- (*Eulima*) *gracilis* C. B. Adams, Contr. Conch., p. 110, 1850; Dall, Bull. 37, U. S. N. M., p. 126, '89.

Distribution.—Hatteras to St. Thomas, W. I., West Fla. and Yucatan. Pliocene, of the Caloosahatchie.

- (*Eulima*) *intermedia* Cantraine, Diagn. Moll., Bull. Ac. Brux., p. 14, 1835; Tryon, Man., 8, p. 274, pl. 69, f. 43, '86; Dall, Bull. 37, U. S. N. M., p. 126, pl. 52, f. 14, '89.

Distribution.—England to the Canary Isls., New England to West Florida and Barbados.

- (*Eulima*) *jamaicensis* C. B. Adams, Pr. Bost. Soc., N. H., 2, p. 6, 1845; Tryon, Man., 8, p. 273, pl. 69, f. 41, '86; Dall, Bull. M. C. Z., 18, p. 327, 1889.

Distribution.—Gulf of Mexico, Blake station 20, in 220 fms. off West Fla. Also Barbados.

- (*Eulima*) *subcarinata* d'Orbigny, Moll. Cuba, p. 217, pl. 16, f. 4-6; Tryon, Man., 8, p. 273, pl. 69, f. 44, 1886; Dall, Bull. 37, U. S. N. M., p. 126, '89.

Distribution.—West Florida to Haiti.

- (*Eulima*) *gibba* De Folin, Les Me'le'agrines, p. 64, pl. 6, f. 4, '67; Tryon, Man., 8, p. 272, pl. 69, f. 35, '87; Dall, Bull. 37, U. S. N. M., p. 126, '89.

Distribution.—Cape Hatteras to Campeche.

- (*Liostraca*) *bilineata* Alder, Moll. Northumberland and Durham; Tryon, Man., 8, p. 279, pl. 70, f. 72-74, 1887; Dall, Bull. 37, p. 126, '89.

Distribution.—Norway to Mediterranean, and West Florida to Haiti.

- (*Liostraca*) *hemphilli* Dall, Pr. U. S. N. M., 6, p. 330, pl. 10, f. 4, 1883; Bull. 37, U. S. N. M., p. 126, pl. 48, f. 11, '89.

Distribution.—Cedar Keys to Marco, West Fla.

- (*Liostraca*) *fusus* Dall, Bull. M. C. Z., 18, p. 329, pl. 19, f. 11b, '89; Bull. 37, U. S. N. M., p. 126, pl. 19, f. 11b, '89.

Distribution.—Fernandina, East Fla., to St. Kitts, W. I. Gulf of Mexico, Yucatan Strait, 640 fms. Also off Havana, 400 fms.

Genus **NISO** Risso

- splendidula* Sowerby, Pr. Zool. Soc., p. 6, 1834, (*Eulima*); A. Adams, Thes. Conch., *Viso*, p. 801, No. 4, pl. 170, f. 8, '54; Tryon, Man., 8, p. 287, pl. 71, f. 24, '86; Dall, Bull. 37, U. S. N. M., p. 128, '89; Pr. U. S. N. M., 37, p. 224, 1910.

Distribution.—Cape Fear, N. C. to Grenada, and Gulf of Mexico, between Mississippi delta and Cedar Keys in 111 fms. Also Pacific Ocean, Sta. Elena, Guayaquil Bay, Ecuador (Type locality), in 6-8 fms. (Cuming).

- aeglees* Bush, Rept. U. S. Fish Com., p. 83, 1883-'85; Dall, Bull. 37, U. S. N. M., p. 128, pl. 41, f. 10a, '89, (as *interrupta* Sowerby var.).

Distribution.—Hatteras to Tampa, West Fla., 7-32 fms. Pleistocene, Knapp's No. 3 well, Terrebonne Parish, La., at 1150-1200 feet.

Genus **PYRAMIDELLA** Lamarck

delabrata Linnæus, Gmelin, Syst. Nat. p. 3585, No. 113, (as *Trochus*); Tryon, Man., 8, p. 300, pl. 72, f. 71-72; Dall, Bull. 37, U. S. N. M., p. 128, '89.

Distribution.—Sarasota, West Fla. to Barbados.

(*Longchæus*) *crenulata* Holmes, Post-Pl. Fos. S. C., p. 88, pl. 13, f. 14, 14a, 1859, (as *Obeliscus*); Dall, Bull. M. C. Z., 18, p. 331, 1889; Tr. W. I. S., 3, p. 247, 1892; Vanatta, Pr. A. N. S. Phila., p. 758, 1903.

Obeliscus tesellatus Dall, Pr. U. S. N. M., 6, p. 330, 1883. Not of Adams, 1855. For full synonymy see Dall, 1889.

Distribution.—South Carolina to St. Thomas, W. I. Gulf coast, Cedar Keys, Tampa Bay, Fla., and Galveston, Texas. Pleistocene, North Creek, West Fla., and of the Lake Borgne borings, La. Habitat, grassy or muddy flats to 2 fms.

(*Longchæus*) *candida* (Meuschen) Moersch, Mal. Blatt., 22, p. 158, (as *Obeliscus*); Dall, Bull. 37, U. S. N. M., p. 128, 1889; Tr. W. I. S., 3, p. 247, 1892.

Distribution.—Hatteras to Barbados and West Florida. Pleistocene of Texas.

(*Syrnola*) *smithi* Verrill, Pr. U. S. N. M., 3, p. 380, 1881, (as *Turbonilla*); Tr. Conn. Acad., 5, p. 538, pl. 58, f. 18, 1882; Bartsch, Pr. Bost. Soc. N. H., 34, p. 71, pl. 11, f. 11, 15, 1909; Johnson, Occ. Pa. Bost. Soc. N. H., 7, 92, '15. Not of Tryon.

Eulimella unifasciata Dall (pars), Bull. M. C. Z., 18, p. 338, pl. 19, f. 11c, 1889; Bull. 37, U. S. N. M., p. 130, pl. 19, f. 11c, '89. Not of Forbes (Rept. Aegean Inv., p. 188, 1843) which is a European shell.

Distribution.—Massachusetts to Barbados and West Fla.

(*Syrnola*) *thelma* Dall, Pr. U. S. N. M., 46, p. 254, pl. 20, f. 3, 1914.

Distribution.—Upper Miocene or Pliocene. Well near Alexandria, La., at 49 feet.

Genus **TURBONILLA** Risso

exilis C. B. Adams, Contr. to Conch., p. 74, 1850, (as *Chemnitzia*); Dall, Bull. 37, U. S. N. M., p. 128, '89; Tr. W. I. S., 3, p. 256, '92.

Distribution.—Hatteras to Haiti and West Florida, 3-63 fms. Pliocene of Caloosahatchie and Shell Creek, Fla.

beloitica Dall, Bull. M. C. Z., 18, p. 335, pl. 26, f. 7d, '89; Bull. 37, U. S. N. M., p. 128, pl. 26, f. 7d, '89.

Distribution.—Gulf of Mexico, Blake station 32, at 95 fms., west of Florida, 50 fms. Also Barbados, 100 fms.

interrupta Totten, Am. Jour. Sci., (1), 28, p. 352, f. 7, 1855, (as *Turritella*); Dall, Bull. 37, U. S. N. M., p. 128, pl. 26, f. 2, 2b, 1889; Tr. W. I. S., 3, p. 259, '92; Bartsch, Pr. Bost. Soc. N. H., 34, p. 87, pl. 12, f. 18, 23, 1909; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 95, 1915.

viridaria Dall, Pr. U. S. N. M., 6, p. 332, 1883.

Distribution.—Nova Scotia to Barbados. 2-107 fms. Gulf coast: Cedar Keys, Fla.; Galveston and Corpus Christi, Tex. Pleistocene, Lake Borgne borings, La., Knapp's wells, Terrebonne Parish, No. 2 at 1050-1790; No. 3 at 1150-1839 feet, also of North Creek, West Fla. Pliocene of the Caloosahatchie beds.

textilis Kurtz, Cat. Rec. Mar. Shells, N. and S. Car., p. 8, '60, (as *Chemnitzia*); Dall, Tr. W. I. S. 3, p. 257, 1892.

Distribution.—Charleston, S. C., to Marco, West Fla. Pliocene, Caloosahatchie beds.

obeliscus C. B. Adams, Contr. Conch., p. 72, 1850, (as *Chemnitzia*); Dall, Bull. 37, U. S. N. M., p. 128, '89; Tr. W. I. S., 3, p. 261, '92.

Distribution.—Hatteras to Jamaica. 12-63 fms. Gulf coast, West Fla. and Galveston, Tex. Pliocene, Caloosahatchie beds, Fla.

virga Dall, Pr. U. S. N. M., 6, p. 332, 1883; Bull. 37, U. S. N. M., p. 128, '89.

Distribution.—Hatteras to Florida Keys and Cedar Keys, Fla. 2-15 fms. Pliocene, Caloosahatchie River.

punicea Dall, Pr. U. S. N. M., 6, p. 332, 1883; Tr. W. I. S., 3, p. 261, 1892.

Distribution.—North Carolina to the Bahamas. 2-31 fms. Gulf coast, Cedar Keys, West Fla. Pliocene, Caloosahatchie beds.

curta Dall, Bull. M. C. Z., 18, p. 337, pl. 26, f. 7c, 1889; Bull. U. S. N. M., p. 128, pl. 26, f. 7c, '89.

Distribution.—Yucatan Strait, 640 fms. Also off Cape Hatteras and Antilles.

speira Ravenel, Pr. Elliott Soc. Nat. Hist., 1, p. 280, 1859, (as *Chemnitzia*); Holmes, Post-Pl. Fos. S. C., p. 82, pl. 13, f. 1, 1a, 1859; Dall, Tr. W. I. S., 3, p. 258, 1892.

Distribution.—Pleistocene, S. Carolina, and *vide* Hilgard, of the Lake Borgne, borings, La. Pliocene, Caloosahatchie beds (?). Not reported in the recent fauna.

reticulata C. B. Adams, Contr. Conch., p. 75, 1850; Dall, Tr. W. I. S., 3, p. 260, '92.

Distribution.—North Carolina to Jamaica, 0-60 fms. Reported by Singley from Galveston, Tex. Pliocene, Caloosahatchie beds, West Florida.

conradi Bush, Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903.

Distribution.—Cited by Vanatta from Calhoun Co., North-west Florida.

(*Parthenia*) *cedrosa* Dall, Pr. U. S. N. M., 6, 1883; Bull. 37, U. S. N. M., p. 130, pl. 48, f. 4, 1889.

Distribution.—Cedar Keys, West Fla.

(*Careliopsis?*) *styliformis* Moersch, Malak, Blatt., 22, p. 169, 1874, Dall, Bull. M. C. Z., 18, p. 338, 1889; Bull. 37, U. S. N. M., p. 130, '89.

Distribution.—Hatteras to Sarasota Bay, West Fla. Also St. Thomas, W. I. 2-52 fms.

Genus *ODOSTOMIA* Fleming

acutidens Dall, Pr. U. S. Nat. Mus., 9, p. 331, 1883.

Distribution.—Hatteras to Cedar Keys, West Florida, 2-107 fms.

Note.—In 1892 (Tr. W. I. S., 3, p. 250), Dall regarded this shell as a variety of the European Miocene to Recent species, *O. conoidea* Brocchi (Conch. Foss. Subapp., 2, p. 659, pl. 16, f. 2, 1814). The latter species is recorded by Harris from the Pleistocene of the Galveston well at 440-458 feet.

impressa Say, Jour. A. N. S. Phila., 2, p. 244, 1822; Dall, Pr. U. S. N. M., 6, p. 331, 1883; Bull. 37, U. S. N. M., p. 130, pl. 52, f. 11, '89; Singley, 4th Ann. Rept. Tex. G. S., p. 337, '92; Bartsch, Pr. Bost. Soc. N. H., 34, pl. 13, f. 51, 1909; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 98, 1915.

Distribution.—Massachusetts to Florida. Gulf coast: Tampa and Cedar Keys, Fla., Corpus Christi, Tex. Pliocene, Caloosahatchie beds, Fla.

seminuda C. B. Adams, Jour. Bost. Soc. N. H., 2, p. 280, pl. 4, f. 13, 1839, (as *Jaminia*); Dall, Bull. 37, U. S. N. M., p. 130, pl. 52, f. 10, '89; Bartsch, Pr. Bost. Soc. N. H., 34, p.

97, pl. 13, f. 45, 48, 1909; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 97, 1915.

Distribution.—Massachusetts to Florida Keys and West Florida.

Genus **PERISTICHIA** Dall

toleta Dall, Bull. M. C. Z., 18, p. 340, 1889; Bull. 37, U. S. N. M., p. 130, pl. 42, f. 10, '89.

Distribution.—Cape Lookout, N. C., to Key West and Charlotte Harbor, West Fla. 2-22 fms.

agria Dall, Bull. M. C. Z., 18, p. 340, 1889; Bull. 37, U. S. N. M., p. 130, '89.

Distribution.—Marco, West Fla. 0-2 fms. Also Key West and off Hatteras.

Genus **ATLANTA** Lesueur

peroni Lesueur, Jour. de Physique, 85, p. 390, pl. 2, f. 1, 2, 1817; d'Orbigny, Voy. Amér., Mérid., p. 171, pl. 12, f. 1-15, 1836; Dall, Bull. 37, U. S. N. M., p. 136, pl. 43, f. 4, 4a, pl. 66, f. 110a, 1889; Pr. U. S. N. M., 37, p. 225, 1910; Bull. 112, U. S. N. M., p. 138, 1921.

Distribution.—West Atlantic, Lat. 42° N. to Tropics. Gulf of Mexico, West Fla. and Texas. Also eastern Pacific. Pelagic.

Genus **OXYGYRUS** Benson

keraudreni Lesueur, Jour. de Physique, 85, p. 391, pl. 2, 1817; H. and A. Adams, Genera Rec. Moll., 2, p. 92, 1858, 3, pl. 69, f. 6, 6b; Verrill, Trans. Conn. Acad., 6, p. 430, 1885; Dall, Bull. 37, U. S. N. M., p. 136, '89; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 130, 1915.

Distribution.—West Atlantic, Lat. 39° N. to Tropics. Gulf of Mexico, West Florida and Texas. Pelagic.

Genus **SIMNIA** Risso

{*Neosimnia*) *intermedia* Sowerby, Spec. Conch., No. 1, p. 9, f. 32, 33, (as *Ovulum*), Thes. Conch., *Ovulum*, No. 40, p. 479, pl. 100, f. 61, 62, 1848; Reeve, Conch. Icon., *Ovulum*, pl. 7, f. 33a, b, 1865; Tryon, Man., 7, p. 251, pl. 3, f. 85-86, (as *Ovula*); Dall, Bull. M. C. Z., 18, p. 235, 1889; Bull. 37, U. S. N. M., p. 134, '89.

Distribution.—Hatteras to Brazil. Gulf coast, Vera Cruz. 15-170 fms.

{*Neosimnia*) *uniplicata* Sowerby, Thes. Conch., p. 478, pl. 100, f. 30-32, 1848, (as *Ovulum*); Reeve, Conch. Icon., *Ovulum*, pl. 9, f. 51a, b, 1865; Tryon, Man., 7, p. 254, pl. 5, f. 39, 40, '85; Dall, Bull. 37, p. 134, '89; Bull. 112, U. S. N. M., p. 139, 1921.

Ovulum subrostratum Sowerby, 1848, *antillarum* and *arcuatum* Reeve, 1865. *carolinensis* Moersch, 1877.

Amphiperas canadiensis Moersch, 1882 (typ. err. for *carolinensis*).

Distribution.—Hatteras to Barbados and West Florida. 12-121 fms. Also Pacific coast, San Pedro, Cal. to Lower California.

Genus **CYPHOMA** Bolten

gibbosa Linnæus, Syst. Nat., ed. X, p. 726 1758, (as *Bulla*); Reeve, Conch. Icon., 15, pl. 7, f. 32, 1865, (as *Ovulum*); Tryon, Man., 7, p. 250, pl. 3, f. 81, 82, 1885; Dall, Bull. 37, U. S. N. M., p. 134, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 420, 1901, (as *Ultimus*).

Distribution.—Georgia to Trinidad, 15-50 fms. Also West Florida.

Genus **PEDICULARIA** Swainson

decussata Gould, Pr. Bost. Soc., N. H., 5, p. 127, 1855; Dall, Bull. M. C. Z., 18, p. 237, pl. 19, f. 9a-b, 1889; Bull. 37, U. S. N. M., p. 134, pl. 19, f. 9a-b, '89.

albida Dall, Bull. M. C. Z., 9, p. 39, 1881.

Distribution.—Georgia to Barbados, and Yucatan Strait. 640 fms.

Genus **CYPRAEA** Linnæus

spurca Linnæus, Syst. Nat., ed. X, p. 724, 1758; Reeve, Conch. Icon., 3, pl. 14, f. 68, 1845; Tryon, Man., 7, p. 195, pl. 19, f. 16, 17, 1885; Dall, Bull. 37, U. S. N. M., p. 136, '89.

Distribution.—Cedar Keys, West Fla., to Barbados, 0-25 fms.

exanthema Linnæus Syst. Nat., ed. XII, p. 1172, 1767; Reeve, Conch. Icon., 3, pl. 5, f. 16, 1848; Tryon, Man., 7, p. 164, pl. 1, f. 4, 5, 1885; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 420, 1901.

Distribution.—Hatteras to Colon, West Florida and Texas. 0-10 fms.

cinerea Gmelin, Syst. Nat., p. 3404, 1792; Reeve, Conch. Icon., 3, pl. 22, f. 124, 1846; Tryon, Man., 7, p. 166, pl. 2, f. 15, 16, '85; Dall, Bull. 37, U. S. N. M., p. 136, '89.

Distribution.—Hatteras to Guadeloupe, West Florida and Texas. 0-163 fms.

Genus **TRIVIA** Gray

pediculus Linnæus, Syst. Nat., ed. X, p. 724, 1758, (as *Cypraea*); Reeve, Conch. Icon., 3, pl. 23, f. 131, 1846; Tryon, Man., 7, p. 201, pl. 21, f. 94, 95, 1885; Dall, Tr. W. I. S., 3, p. 168, '90.

Distribution.—St Augustine, Fla., to Barbados and West Fla. Pliocene, Caloosahatchie beds.

suffusa Gray, Descr. Cat. Cypr. p. 16, 1832; Tryon, Man., 7, p. 201, pl. 21, f. 1, 2, 1885; Dall, Bull. M. C. Z., 18, p. 240, 1889.

Distribution.—Cedar Keys, West Fla., to Barbados. 1-3 fms., on reefs. Pliocene, Caloosahatchie beds.

candidula Gaskoin, Pr. Zool. Soc., p. 200, 1835; Tryon, Man., 7, p. 203, pl. 22, f. 33, 34, '85; Dall, Bull. M. C. Z., 18, p. 240, '89; Bull. 37, U. S. N. M., p. 136, '89.

olorina Duclos, *approximans* Beck.

Distribution.—Hatteras to Barbados. 18-140 fms. Gulf of Mexico, Yucatan Strait, 640 fms.

globosa Gray, Descr. Cat. Cypr., p. 14, 1832; Tryon, Man., 7, p. 200, pl. 21, f. 92, 93, '85; Dall, Bull. M. C. Z., 18, p. 241, '89; Bull. 37, U. S. N. M., p. 136, '89.

pilula Kiener, *sphaerula* Mighels.

Distribution.—Gulf of Mexico, U. S. Fish Com. station 2373, west of Fla., at 23 fms. Also Key West and Antilles. Pliocene, Caloosahatchie beds.

Genus **ERATO** Risso

maueriae Gray, In Sowerby, Conch. Illustr., p. 17, pl. 7, f. 47, 1832; Tryon, Man., 5, p. 9, pl. 4, f. 42, 43, '83; Dall, Tr. W. I. S., 3, p. 168, 1890.

laevis Emmons, N. Car. Geol. Rept., p. 262, f. 139, 1858. Not of Donovan.

Distribution.—Hatteras to Antilles and Colon; West Fla. and Vera Cruz. 0-63 fms,

Genus **BURSA** Bolten

affinis Broderip, Pr. Zool. Soc., p. 179, 1832, (as *Ranella*);

Tryon, Man., 3, p. 42, pl. 22, f. 38, 1881; Dall, Bull. 37, U. S. N. M., p. 132, '89, (as *Gyrineum*).

Distribution.—Hatteras to the Antilles. Variety *cubaniana* d'Orbigny, dredged on Arrowsmith bank, Yucatan, also off Key West and Cuba.

Genus **DISTORTIO** Bolten

reticulatus Link, Beschr. Rostock Samml., 3. p. 122, 1807, (as *Distortrix*); Dall, Bull. 37, U. S. N. M., p. 132, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 416, 1901; Mitchell, List Tex. Shells, p. 11.

Distribution.—Hatteras to Barbados, West Florida and Mustang Island, Texas, 22-154 fms.

reticulatus var. **clathratus** Lamarck, An. s. Vert., 7, p. 186, 1822,, Inc. Me'th., pl. 413. f. 4, (as *Triton*); Dall and Simpson, Bull. U. S. Fish Com., 1, p. 416, 1901.

Distribution.—Porto Rico and Gulf of Mexico near Key West (dredged by U. S. Fish Com.), also at Chandeleurs, La. Pleistocene, New Orleans pumping station No. 7.

Genus **COLUBRARIA** Schumacher

lanceolata Menke, Synopsis, p. 87, 1828, (as *Ranella*); Reeve, Conch. Icon., 2, pl. 18, f. 79, 1844, (as *Triton*); Kuster, Conch. Cab., pl. 65, f. 8; Tryon, Man., 3, p. 27, pl. 16, f. 162, 1881; Dall, Bull. 37, U. S. N. M., p. 132, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 416, 1901.

Distribution.—Hatteras to Barbados and Vera Cruz on the Gulf coast. Genotype

testacea Moersch, Yoldi Cat., 107, (as *Triton*); Mal. Blatt., 24, p. 25; Tryon, Man., 3, pl. 14, f. 128, 1881; Dall, Bull. 37, U. S. N. M., p. 132, '89; Tr. W. I. S., 3, p. 161, 1890.

Distribution.—Hatteras to Sombrero, and Texas region of the Gulf of Mexico. Pliocene, Caloosahatchie River, West Florida.

Genus **CYMATIUM** Bolten

olearium Linnæus, Syst. Nat., ed. XII, p. 1216, (*Triton*); Reeve, Conch. Icon., 2, f. 32, 1844; Tryon, Man., 3, p. 11, pl. 5, f. 27, '81; Dall, Bull. 37, U. S. N. M., p. 132, '89, (as *Lampusia*); Bartsch, Bull. U. S. N. M., p. 94, 1915.

Distribution.—Hatteras to Cartagena, Colombia, and the Texas region of the Gulf of Mexico. Also Indian Ocean, Port Alfred, South Africa.

chlorostomum Lamarck, An. sans Vert., 7, p. 185, 1822, (as *Triton*); Kiener, Icon. Coq. Viv., p. 19, pl. 12, f. 2; Tryon, Man., 3, p. 13, pl. 7, f. 47, 48, 1881; Dall, Bull. 37, U. S. N. M., p. 132, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 417, 1901,) as *Lampusia*).

Triton pulchellus C. B. Adams, Contr. Conch., p. 60, 1850.

Distribution.—East Florida to Barbados and Gulf of Mexico along the Mexican coast.

gracile Reeve, Conch. Icon., *Triton* f. 58, 1845; Tryon, Man., 3, pl. 12, f. 97, 1881; Dall, Bull. M. C. Z., 18, p. 227, pl. 29, f. 2, '89; Bull. 37, U. S. N. M., 132, pl. 29, f. 2, '89, (as *Lampusia*).

Distribution.—Cape Catoche, Yucatan, 24 fms., U. S. Fish Com. Also Colon and Barbados. Max. depth 100 fms.

cynocephalum Lamarck, An. sans Vert., 7, p. 184, 1822, (as *Triton*); Reeve, Conch. Icon., 2, pl. 8, f. 26, 1844; Tryon, Man., 3, p. 19, pl. 11, f. 80, pl. 15, f. 152, '81; Dall, Bull. 37, U. S. N. M., p. 132, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 417, 1901, (as *Lampusia*).

Distribution.—Florida Straits to Margarita Isl. Texas region of the Gulf.

Genus **NYCTILOCHUS** Gistel

femorale Linnæus, Syst. Nat., ed. X, p. 749, 1758, (as *Murex*);

Reeve, Conch., Icon., 2, pl. 7, f. 22, 1844, (as *Triton*); Tryon, Man., 3, p. 18, pl. 10, f. 70, '81; Dall, Bull. 37, U. S. N. M., p. 132, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 417, 1901, (as *Lotorium*).

Distribution.—Cedar Keys, West Fla., to Guadeloupe.

Genus **ASPELLA** Moersch

scalarioides Blainville, Faune Francaise, p. 131, pl. 5, f. 5, 6, 1826, (as *Murex*); Dall and Simpson, Bull. U. S. Fish Com., 1, p. 410, 1910.

Distribution.—European and Antillean.

scalarioides var. **paupercula** C. B. Adams, Contr. Conch., p. 60, 1850, (as *Murex*); Dall, Bull. M. C. Z., 18, p. 208, '89; Bull. 37, U. S. N. M., p. 120, '89.

Triton cantrainaei Recluz, Jour. de Conch., 4, pp. 246, 418, pl. 8, f. 10, 1853; Kobelt, Jahrb. Mal. Gesell., 4, p. 244, 1877, (as *Ocenebra*).

Distribution.—West Florida, at 50 fms.; Texas and the Antilles.

scalarioides var. **obeliscus** A. Adams, Pr. Zool. Soc., p. 269, 1851; Tryon, Man., 2, p. 129, pl. 38, f. 467, 1880; Dall, Bull. 37, U. S. N. M., p. 120, '89.

Distribution.—Vera Cruz to St. Thomas. Texas region of the Gulf.

Genus **OOCORYS** Fischer

abyssorum Verrill and Smith, Tr. Conn. Acad. Sci., 6, p. 177, (not the fig, which is *O. sulcata*), 1884, (as *Benthodolium*); Dall, Bull. M. C. Z., 18, p. 229, '89; Bull. 37, U. S. N. M., p. 132, '89.

Distribution.—Northern part of the Gulf of Mexico, U. S. Fish Com. station, No. 2400, in 169 fms. Also off Carolina. Max. depth 2221 fms.

Genus **CASSIS** Lamarck

cameo Stimpson, Silliman's Am. Jour. Sci., p. 443, 1860; Tryon, Man., 7, p. 271, pl. 2, f. 50, '85; Dall, Bull. 37, U. S. N. M., p. 134, '89.

Distribution.—Hatteras to Barbados and West Fla.

tuberosa Linnæus, Syst. Nat., ed. X, p. 735, 1758, (as *Buccinum*); Reeve, Conch. Icon., 5, pl. 3, f. 7, 1848; Tryon, Man. Conch., 7, p. 271, pl. 2, f. 51, '85; Dall, Bull. 37, U. S. N. M., p. 134, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 418, 1901.

Distribution.—Hatteras to Barbados and West Fla.

(**Cypræacassis**) **testiculus** Linnæus, Syst. Nat., ed. X, p. 736, 1758, (as *Buccinum*); Reeve, Conch. Icon., 5, pl. 4, f. 10, 1848; Tryon, Man., 7, p. 273, pl. 2, f. 64, pl. 4, f. 63, '85; Dall, Bull. 37, U. S. N. M., p. 134, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 418, 1901.

Distribution.—Hatteras to Trinidad, W. I., and the Texas region of the Gulf.

(**Semicassis**) **inflata** Shaw, Nat. Misc., 5, p. 22, pl. 959, 1812; Tryon, Man., 7, p. 274, pl. 4, f. 65, '85; Dall, Bull. 37, U. S. N. M., p. 134, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 418, 1901; Mitchell, List Tex. Shells, p. 6; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903.

Distribution.—Hatteras to Brazil, Gulf coast: Calhoun Co. West Fla.; Point au Fer, Chandeleurs, Lost Island, La.; Galveston, Tex. Pleistocene, New Orleans pumping station No. 7, Knapp's No. 2 well, Terrebonne Parish, at 1791-1842 feet.

Genus **ONISCIDIA** Swainson

dennisoni Reeve, Pr. Zool. Soc., p. 21, 1842, (as *Oniscia*); Tryon, Man., 7, p. 282, pl. 10, f. 20, '85; Dall, Bull. M. C. Z., 18, p. 231, '89.

Distribution.—Arrowsmith Bank, Yucatan, at 130 fms. Also Guadelonpe Island. (Type locality).

Genus **TONNA** Brunnich

galea Linnæus, Syst. Nat., ed. X, p. 734, 1758, (as *Buccinum*):
Reeve, Conch. Icon., 5, pl. 1, 1848; Tryon, Man., 7, p. 261,
pl. 1, f. 3, '85; Dall and Simpson, Bull. U. S. Fish Com., 1,
p. 419, 1901. (All as *Dolium*).

Distribution.—Hatteras to Trinidad, West Florida, Louisiana, Galveston and Matagorda, Texas. Also Mediterranean.

perdix Linnæus, Syst. Nat., ed. X, p. 734, 1758, (as *Buccinum*):
Reeve, Conch. Icon., 5, pl. 6, f. 9, 1849, (as *Dolium*); Tryon,
Man., 7, p. 264, pl. 3, f. 15, pl. 4, f. 23-25, '85; Dall, Bull.
37, U. S. N. M., p. 134, '89.

Distribution.—West Florida to Brazil.

Genus **PYRULA** Lamarck

papyratia Say, Jour. A. N. S. Phila., 2, p. 238, 1822; Tryon,
Man., 7, p. 266, pl. 6, f. 35, '85; Dall, Tr. W. I. S., 3, p.
163, '90; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903.

Distribution.—North Carolina to the West Indies. Gulf coast, Calhoun Co., Fla. and Texas. Pleistocene, New Orleans pumping station No. 7 and of Fla. Pliocene, Caloosahatchie River.

Genus **STROMBUS** Linnæus

pugilis Linnæus, Syst. Nat., ed. X, p. 744, 1758; Reeve, Conch. Icon., 6, pl. 16, f. 39-41, 1851; Tryon, Man., 7, p. 109, pl. 2, f. 13-15, '85; Dall, Tr. W. I. S., 3, p. 177, '90; Singley, 4th Ann. Rept. Tex., p. 338, '92; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 422, 1901; Vanatta, Pr. A. N. S. Phila.,

55, p. 758, 1903; Vaughan, Publ. No. 133, Carn. Inst., p. 171, 1910.

Distribution.—Hatteras to Colon. Gulf coast; Cedar Keys and Calhoun Co., West Fla.; Point au Fer, Chandeleurs, Cameron, La., Galveston and Corpus Christi, Tex. Pleistocene, Grand Chenier, La., New Orleans pumping station No. 7; North Creek, and Labella, West Fla. Pliocene, Caloosahatchie River.

costatus Gmelin, Syst. Nat., p. 3520, 1792; Tryon, Man., 7, p. 108, 1885; Dall, Bull. 37, U. S. N. M., p. 136, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 422, 1901.

accipitrinus Reeve, Conch. Icon., 6, pl 7, f. 12, 1850; Tryon, Man., 7, pl. 1, f. 7, '85.

Distribution.—St. Augustine, East Fla. to Guadeloupe, W. I. Also West Fla.

Genus **SEGUENZIA** Jeffreys

monocingulata Seguenza, Boll. Comitato Geologico, 7, p. 188, '76; Watson, Chall. Rept. Gastr., p. 105, '86; Dall, Bull. M. C. Z., 18, p. 268, '89; Bull. 37, U. S. N. M., p. 142, pl. 62, f. 88, 89, 1889.

formosa Jeffreys, Rept. Valorous Cruise, p. 200, 1876; Dall, Bull. M. C. Z., 9, p. 268, '89.

Distribution.—Western North Atlantic and Bay of Biscay. Gulf of Mexico, West Florida and Texas regions. 100-2033 fms.

trispinosa Watson, Jour. Linn. Soc., 14, p. 591; Chall. Rept. Gastr., 15, pl. 7, f. 4, 1886; Tryon, Man., 9, p. 47, pl. 8, f. 79, 80, 1887, Dall, Bull. 37, U. S. N. M., p. 142, 1889.

Distribution.—Hatteras to Pernambuco, Brazil and the Tex region of the Gulf. 294-675 fms.

iconica Watson, Jour. Linn. Soc., 14, p. 589, 1879; Chall. Rept. Gastr., 15, p. 107, pl. 7, f. 3, 1886; Tryon, Man., 9, p. 47, pl. 8, f. 77, 78, '87; Dall, Bull. M. C. Z., 18, p. 269, 1889.

Distribution.—Gulf of Mexico, Florida Strait region, Culebra Isl., W. I., and off the Azores. 390-1568 fms.

Genus **TRIPHORA** Blainville

perversa var. **nigrocincta** C. B. Adams, Jour. Bost. Soc. N. H., 2, p. 286, pl. 4, f. 11, 1839, (as *Cerithium*); Gould, Inv. Mass., p. 323, f. 592, 1870; Dall, Pr. U. S. N. M., 6, p. 333, '83; Bull. 37, U. S. N. M., p. 138, '89; Singley, 4th Ann. Rept. G. S. Tex., p. 338, '92; Dall, Tr. W. I. S., 3, p. 263, '92; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 126, 1915.

Distribution.—Massachusetts to Barbados. 0-30 fms. Gulf coast: Cedar Keys, Florida, Corpus Christi, Texas. Pliocene, Caloosahatchie beds, West Fla.

decorata C. B. Adams, Contr. Conch., p. 177, 1850, (as *Cerithium*); Dall, Tr. W. I. S., 3, p. 265, 1892.

Distribution.—Gulf of Mexico, north and east shores, and the Antilles. Also Lower Miocene of the Chipola marl, West Florida. Variety *olivacea* Dall, (Bull. M. C. Z., 18, p. 244, 1889; Bull. 37, U. S. N. M., p. 138, '89), Gulf of Mexico, west of Florida, in 50 fms. Also Key West and Antilles.

colon Dall, Bull. M. C. Z., 9, p. 86, 1881; 18, p. 247, pl. 20, f. 12, '89; Bull. 37, U. S. N. M., p. 138, pl. 20, f. 12, '89.

Distribution.—Yucatan Strait, 640-1002 fms. Also off Havana, Cuba, 450 fms.

triserialis Dall, Bull. M. C. Z., 9, p. 84, 1881; 18, p. 246, pl. 20,

f. 5a, 6a, 1889; Bull. 37, U. S. N. M., p. 138, pl. 20, f. 5a, 6a, 1898.

Distribution.—Yucatan Strait, 640 fms. Also off Barbados, 154 fms.

bigemma Watson, Jour. Linn. Soc., 15, p. 101, 1880; Dall, Bull. M. C. Z., 9, p. 81, 1881; Watson, Chall. Rept. Gastr., p. 562, pl. 43, f. 6, '85; Dall, Bull. M. C. Z., 18, p. 248, '89.

Distribution.—Yucatan Strait, 640 fms. Also off St. Thomas, W. I., 390 fms.

hircus Dall, Bull. M. C. Z., 9, p. 83, 1881; 18, p. 249, pl. 20, f. 11, '89; Bull. 37, U. S. N. M., p. 138, pl. 20, f. 11, '89.

Distribution.—Yucatan Strait, 640 fms. Perhaps a variety of *bigemma* Watson.

abrupta Dall, Bull. M. C. Z., 9, p. 84, 1881; 18, p. 249, pl. 20, f. 9, '89; Bull. 37, U. S. N. M., p. 138, pl. 20, f. 9, '89.

Distribution.—Yucatan Strait, Cape San Antonio, 640 fms.

tortricula Dall, Bull. M. C. Z., 9, p. 82, 1881; 18, p. 249, pl. 20, f. 11b, '89; Bull. 37, U. S. N. M., p. 138, pl. 20, f. 11b, 1889.

Distribution.—Yucatan Strait, 640 fms.

inflata Watson, Jour. Linn. Soc., 15, p. 101, 1880; Dall, Bull. M. C. Z., 9, p. 81, 1881; Watson, Chall. Rept. Gastr., p. 564, pl. 40, f. 1, '85; Dall, Bull. M. C. Z., 18, p. 249, 1889.

Distribution.—Yucatan Strait, 640 fms. Also off Georgia, St. Augustine and Culebra Isl. 294-640 fms.

inflata var. **ibex** Dall, Bull. M. C. Z., 9, p. 86, 1881; 18, p. 249, pl. 20, f. 12b, '89.

Distribution.—Yucatan Strait, off Cape San Antonio, in 640 fms. Also off Havana, 450 fms.

cylindrella Dall, Bull. M. C. Z., 9, p. 83, 1881; 18, p. 250, pl. 20, f. 6, '89; Bull. 37, U. S. N. M., p. 138, pl. 20, f. 6, '89.

Distribution.—Cape San Antonio, Yucatan Strait, 640 fms.

Genus **CERITHIOPSIS** Forbes and Hanley

greenei C. B. Adams, Jour. Bost. Soc. N. H., 2, p. 287, pl. 4, f. 12, 1839, (as *Cerithium*); Dall, Bull. 37, U. S. N. M., p. 138, pl. 52, f. 2, '89; Tr. W. I. S., 3, p. 269, '92; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 126, 1915.

Distribution.—Prince Edward Island to Dominican Republic and west of Cedar Keys, Fla., Corpus Christi and San Antonio, Texas. 3-10 fms. Pliocene, Caloosahatchie River, Florida.

crystallina Dall, Bull. M. C. Z., 9, p. 89, 1881; 18, p. 254, pl. 20, f. 3, '89; Bull. 37, U. S. N. M., p. 138, pl. 20, f. 20, f. 3, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 424, 1901.

Distribution.—Washed ashore dead, Cedar Keys, Florida, dredged alive west of Florida in 50 fms. Common in Antillean dredgings. 50-805 fms.

martensi Dall, Bull. M. C. Z., 18, p. 255, pl. 20, f. 2, '89; Bull. 37, U. S. N. M., p. 138, pl. 20, f. 2, '89.

Distribution.—Gulf of Mexico, west of Florida, at 1181 fms.

vanhyningi Bartsch, Pr. Biol. Soc. Washington, 31, p. 135, 1918.

Distribution.—Tampa Bay, West Fla.

burkevillensis Dall, Pr. U. S. N. M., 46, p. 231, pl. 22, f. 5, 1914.

Distribution.—Upper Miocene or Lower Pliocene, Burkeville, Texas.

(*Eumeta*) *subulata* Montagu, Test. Brit. Suppl., p. 115, pl. 30, f. 6, 1808, (as *Murex*); Dall, Bull. M. C. Z., 18, p. 252, pl. 20, f. 4, '89; Bull. 37, U. S. N. M., p. 140, pl. 20, f. 4, pl. 52, f. 1, '89; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 126, 1915.

emersoni C. B. Adams, Jour. Bost. Soc. N. H., 2, p. 284, pl. 4, f. 10, 1838, (as *Cerithium*) Verrill, Inv. Vineyard Sound, p. 648, pl. 24, f. 151, 1873.

punctatum Philippi, 1848. Not of Bruguiere, 1789.

Distribution.—Massachusetts to Grenada, W. I. Gulf of Mexico, Cedar Keys, Texas and Yucatan. 2-15 fms. Pliocene of the Caloosahatchie.

Genus *SEILA* A. Adams

adamsi H. C. Lea, Tr. Amer. Phil. Soc. 2d ser. 9, p. 42, 1845, (as *Cerithium*); Dall, Tr. W. I. S., 3, p. 267, 1892; Vanatta Pr. A. N. S. Phila., 55, p. 758, 1903; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 127, 1915.

terebralis C. B. Adams, Jour. Bost. Soc. N. H., 3, p. 320, pl. 3, f. 7, 1840 (as *Cerithium*); De Kay, N. Y. Moll, p. 130, pl. 8, f. 172, '43; Dall, Bull. M. C. Z., 18, p. 250, '89; Bull. U. S. N. M., p. 138, pl. 52, f. 5, '89. Not *Cerithium terebrale* Lamarck.

Distribution.—Massachusetts to Samana Bay, Dominican Republic. 0-20 fms. Gulf coast: Cedar Keys, Fla.; Chandeleurs, La.; Galveston and Corpus Christi, Texas, 0-20 fms. Pleistocene, Gulf coast. Pliocene, Caloosahatchie River, Fla. Lower Miocene, Chipola marl, West Fla.

Genus *CERITHIUM* Bruguiere

floridanum Moersch, Mal. Blatt., 23, p. 114, 1876; Dall, Bull. 37, U. S. N. M., p. 140, '89; Tr. W. I. S., 3, p. 282, pl. 14, f. 10, 1892; Vaughan, Publ. No. 133, Carn. Inst., p. 171, 1910.

Distribution.—Hatteras to Cuba and West Fla. Pleistocene, Labella, West Fla. Pliocene, Caloosahatchie beds.

alginicola C. B. Adams, Pr. Bost. Soc. N. H., 2, p. 5, '48; Tryon, Man., 9, p. 129, pl. 22, f. 81, 82, '87; Dall, Tr. W. I. S., 3, p. 282, '92.

Distribution.—Tampa and Charlotte Harbor, West Florida to Jamaica. Between tides. Pliocene, Caloosahatchie beds.

litteratum Born, Mus. Cæs. Vind., p. 323, pl. 11, f. 14, 15, 1780; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 425, 1901.

Distribution.—East and West Florida, Antilles and Europe.

muscarum Say, Amer. Conch., 5, pl. 49, f. 1, 1832; Tryon, Man., 9, p. 132, pl. 23, f. 12, 13, '87; Dall, Tr. W. I. S., 3, p. 282, Vaughan, 2d Ann. Rept. Fla. G. S., p. 148, 1909.

Distribution.—Florida to Jamaica. Gulf coast: Cedar Keys and St. Mark's, Fla.; Chandeleurs, La. Pleistocene, Manatee, Labelle and North Creek, Fla. Pliocene, Caloosahatchie beds.

variable C. B. Adams, Pr. Bost. Soc. N. H., 2, p. 5, 1848; Sowerby, Conch. Icon., 15, pl. 13, f. 91, 1865; Dall, Bull. 37, U. S. N. M., p. 140, 1889; Mitchell, List Texas Shells.

Distribution.—Tampa, Fla.; Galveston, Corpus Christi, Carancahua and Espiritu Santo Bays, Tex. South to the Antilles and Curacao.

minimum Gmelin, Syst. Nat., p. 3564, 1792, (as *Murce*); Tryon, Man., 9, p. 167, pl. 34, f. 9-11, 1887; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 426, 1901.

Distribution.—Tampa, Fla., to Guadeloupe Isl.

minimum var. **nigrescens** Menke, Synopsis, p. 85, 1828; Dall, Bull. 37, U. S. N. M., p. 140, '89.

Distribution.—Tampa to Venezuela.

eburneum Bruguiere, Ency. Méth., pl. 442, f. 1a, b; Tryon,

Man., 9, p. 129, pl. 61, f. 71, 72, 1887; Dall, Bull. 37, U. S. N. M., p. 140, 1889; Singley, 4th Ann. Rept. Texas Surv., p. 339, 1892.

Distribution.—Florida to the Swan Isls. Cited by Singley from Corpus Christi, Texas.

galvestonense Harris, Bull. Amer. Pal., vol. 1, p. 104, pl. 4, f. 9, 9a, 1895.

Distribution.—Upper Miocene, Galveston well at 2236-2920 feet.

Genus **CLAVA** Martyn

chipolana Dall, Tr. Wagner Inst. Sci., 3, p. 290, pl. 22, f. 8, 1892.

Distribution.—Lower Miocene of the Chipola marl, Alum Bluff, Fla., and of the Bacom well, Mobile, Ala., at 1241 ft., Chipola horizon.

Genus **CERITHIDEA** Swainson

costata Wood, Mal. Blatt., 23, p. 90; Dall, Pr. U. S. N. M., 6, p. 334, 1883; Bull. 37, U. S. N. M., p. 140, '89.

Distribution.—Tampa, West Fla., to St. Thomas and Jamaica.

scalariformis Say, Jour. A. N. S. Phila., p. 128, 1825; Tryon, Man., 9, p. 163, pl. 33, f. 78, '87; Dall, Bull. 37, U. S. N. M., p. 140, '89.

Distribution.—Georgia to Cedar Keys, West Fla.

varicosa Sowerby, Genera Shells, No. 42, f. 5; Dall, List Cameron Shells; Bull. M. C. Z., 18, p. 259, '89

Distribution.—Texas, Breton Island, Chandeleurs, La., and south to Cuba and Jamaica.

turrita Stearns, Pr. Bost. Soc. N. H., 15, p. 24, 1872; Tryon, Man., 9, p. 164, pl. 34, f. 83, '87; Dall, Tr. W. I. S., 3, p. 290, 1892.

Distribution.—Cedar Keys, Fla., to the Bahamas. Pliocene of Shell Creek, Fla.

hegewishi Philippi, Mal. Blatt., 23, p. '89; Zeitschr. für Malak., p. 19, 1841; Singley, 4th Ann. Rept. Tex., p. 339, 1892; Mitchell, List Tex. Sh.

Distribution.—Cited by Singley and Mitchell from Matagorda, Carancahua and Corpus Christi Bays, Texas.

Genus **POTAMIDES** Brongniart

matsoni Dall, Pr. U. S. N. M., 46, p. 231, pl. 21, f. 1, 2, 7, 1914.

Distribution.—Well near Alexandria, La., at 49 feet; well at Pine Prairie, La., at 1540 feet; surface near Burkeville, Texas.

Note.—The brackish water molluscan fauna of Burkeville, Texas; Alexandria and Pine Prairie, La., was referred in 1914 by Dr. Dall to the Pliocene. Dr. W. D. Matthew thought the mammalian remains (tibia of a rhinoceros and upper molar of a horse, either *Protohippus* or *Merychippus*) indicated a Late Miocene or Early Pliocene age. For discussion of the Burkeville beds (lower member of the Fleming clay) see Dumble, Univ. Tex. Bull. No. 1869, pp. 224-225, 1918. The stratigraphic relation of the Burkeville beds rather suggests an Upper Miocene horizon.

matsoni var. **gracilior** Dall, Pr. U. S. N. M., 46, p. 231, 1914.

Distribution.—Well near Alexandria, La., at 49 feet; well at Paririe Bluff, La.; near Burkeville, Tex.

Genus **ALABINA** Dall

adamsi Dall, Bull. M. C. Z., 18, p. 258, '89; Bull. 37, U. S. N. M., p. 140, '89; Tr. W. I. S., 3, p. 276, '92, (All as *Bittium*).

Distribution.—Hatteras to Haiti and West Florida, moderate depths. Pliocene. Caloosahatchie River and Shell Creek, West Fla.

cerithioides Dall, Bull. M. C. Z., 18, p. 258, '89; Bull. 37, U. S. N. M., p. 140, '89; Tr. W. I. S., 3, p. 276, pl. 16, f. 8, '92; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 427, 1901. (All as *Bittium cerithioide*).

Distribution.—Cape Lookout, N. C., to Samana Bay, Dominican Republic. Singly lists with a question a shell from Corpus Christi, Tex. Pliocene, Caloosahatchie River, Fla.

Genus **BITTIUM** (Leach) Gray

varium Pfeiffer, Arch. fur Naturg., p. 256, No. 139, 1840, (as *Cerithium*); Tryon, Man., 9, p. 152, pl. 29, f. 86, '87; Dall, Tr. W. I. S., 3, p. 274, '92; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 426, 1901.

gibberulum C. B. Adams, Pr. Bost. Soc. N. H., p. 5, 1845; Sowerby's Thes., p. 876, f. 210, 211, (as *Cerithium*).

Distribution.—Chesapeake Bay to St. Thomas, W. I. Gulf coast: Cedar Keys, Fla.; Chandeleurs, La.; Corpus Christi, Galveston and Laguna Madre, Tex. Pleistocene, North Beach, Fla. Pliocene, Caloosahatchie and Shell Creek, Florida.

Note.—*Bittium nigrum* Totten, synonym of *B. alternatum* Say, has been erroneously reported from Cedar Keys, Fla. and Chandeleurs, La. These specimens were probably *varium*. True *alternatum*, *fide* Dall, does not extend southward of New York Harbor.

boioplex Dall, Tr. W. I. S., 3, p. 275, pl. 21, f. 14, '92.

Distribution.—Lower Miocene, Chipola marl, Fla., and of the Basom No. 1 well, Mobile, Ala. at 1500-1556 ft., Chipola horizon, Aldrich's collection. A varietal form.

galvestonense Harris, Bull. Amer. Pal., vol. 1, p. 104, pl. 4, f. 8, 1895.

Distribution.—Upper Miocene, Galveston well at 2550-2871 feet.

Genus **MODULUS** Gray

modulus Linnæus, Syst. Nat., ed. X, p. 757, 1758, (as *Trochus*); Dall, Bull. 37, U. S. N. M., p. 142, 1889; Singley, 4th Ann. Rept. Tex. G. S., p. 339, '92; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 427, 1901.

lenticularis Chemnitz, Tryon, Man., 9, p. 261, pl. 48, f. 91, 92, 1887.

Distribution.—Hatteras to Brazil and to Cartagena, Colombia. Gulf coast: West Florida, Chandeleurs, La.; Galveston, Corpus Christi, and Espiritu Santo Bay, Tex. Between tides. Pliocene, Caloosahatchie and Shell Creek, Fla. Upper Miocene, Galveston well at 2552-2871 feet (identification doubtful).

floridanus Conrad, Amer. Jour. Conch., 5, p. 107, pl. 12, f. 6, '70; Hilgard, House of Rep. Ex. Doc., 1, pt. 2, p. 887, 1878; Dall, Pr. U. S. N. M., 6, p. 335, '83; Bull. 37, U. S. N. M., p. 142, '89; Tr. W. I. S., 3, p. 295, '92; Vaughan, Publ. No. 133, Carn. Inst., p. 171, 1910.

Distribution.—Hatteras to St. Thomas, W. I. Gulf coast, Cedar Keys and St. Mark's, West Fla. Pleistocene, Lake Borgne borings, La., and North Creek and Labelle, Fla. Pliocene, Caloosahatchie beds, Fla. and of the New Orleans Gymnasium club well at 1200 feet.

Genus **PACHYCHEILUS** Lea

anagrammatus Dall, Proc. U. S. N. M., 46, p. 232, pl. 21, f. 5, 8, 1914.

Distribution.—Upper Miocene or Pliocene. Well near Alexandria, La., at 49 feet. Also near Burkeville, Texas,

surface exposure. Brackish water formation.

satillensis Aldrich, *The Nautilus*, 24, pt. 11, p. 132, pl. 8, f. 1, 1a-c, 1911, (as *Potamides*); Dall, *Pr. U. S. N. M.*, p. 232, 1914,

Distribution.—Upper Miocene or Pliocene. Satilla River, Ga., and Burkeville, Tex. Brackish water formation.

suavis Dall, *Proc. U. S. N. M.*, 46, p. 232, pl. 21, f. 6, 9, 1914.

Distribution.—Upper Miocene or Pliocene. Well near Alexandria, La., at 49 feet, and well, Pine Prairie oil field, La., at 1540 feet. Also surface exposure, Burkeville, Tex.

Genus **CAECUM** Fleming

floridanum Stimpson, *Pr. Bost. Soc. N. H.*, 4, p. 112, 1851; Tryon, *Man.*, 8, p. 217, pl. 66, f. 62, '86; Dall, *Bull. 37, U. S. N. M.*, p. 142, '89; *Tr. W. I. S.* 3, p. 298, '92.

irregulare de Folin, *Jour. de Conch.*, 15, p. 46, pl. 3, f. 6, 1867.

annulatum Emmons, *Rept. Geol. N. Car.*, p. 274, f. 190, '58. Not of Brown, 1844.

Distribution.—Hatteras to Bahia, Brazil. Also West Fla. 2-18 fms. Pliocene, Caloosahatchie, Fla.

instructum de Folin, *Fonds de la Mer*; Dall, *Bull. 37, U. S. N. M.*, p. 142, '89.

Distribution.—Hatteras to Tampa, West Fla. Pliocene to Recent.

bipartitum de Folin, *Fonds de la Mer*; Dall, *Bull. 37, U. S. N. M.*, p. 142, '89.

Distribution.—Hatteras and West Florida.

carolinianum Dall, *Trans. Wagner Inst. Sci.*, 3, p. 300, pl. 22, f. 25, 1892; *Bull. 37, U. S. N. M.*, p. 142, 1889, (name only).

Distribution.—Hatteras to Tortugas and to Egmont Key, West Fla. 2-63 fms. Pliocene, Caloosahatchie River, Florida.

glabrum Montagu, Test. Brit., 2, p. 497, 1803. (as *Dentalium*): Tryon, Man., 8, p. 215, pl. 66, f. 57, 1886; Dall, Bull. 37, U. S. N. M., p. 142, '89.

Distribution.—North Carolina to Tampa, West Fla. Also European. Pliocene of the Caloosahatchie and of England. Miocene of Yorktown, Va.

cooperi Sanderson Smith, Ann. & Lyc. N. Hist. N. Y., 7, pp. 154, 168, 1862; 9, p. 393, f. 3, 1870; Tryon, Man., 8, p. 221, pl. 67, f. 84, '85; Dall, Tr. W. I. S., 3, p. 299, 1892; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 124, 1915.

costatum Verrill, Am. Jour. Sci., (3) 3, p. 283, pl. 6, f. 6, 1872.

Distribution.—Massachusetts to the Antilles. Gulf coast: Crooked Island, Calhoun Co., West Fla. Pliocene of the Caloosahatchie and Shell Creek, West Fla.

pulchellum Stimpson, Pr. Bost. Soc. N. H., 4, p. 112, 1851; Shells of New England, p. 36, pl. 2, f. 3; Hilgard, House of Rep. Ex. Doc., 1, pt. 2, p. 886, 1878. Tryon, Man., 8, p. 217, pl. 66, f. 63, '86; Dall, Bull. 37, U. S. N. M., p. 142, pl. 50, f. 22, '89; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 123, 1915.

Distribution.—Cape Cod, Mass., to the Tortugas. Gulf coast: Crooked Island, Calhoun Co., Fla. Pleistocene, Lake Borgne, La., borings.

Genus **MEIOCERAS** Carpenter

deshayesi de Folin, Annales Soc. Linn. Maine et Loire, 11, '69, Dall, Bull. 37, U. S. N. M., p. 142, '89.

Distribution.—Tampa, West Fla., to Jamaica, W. I.

undulosum de Folin, Ann. Soc. Linn. Maine et Loire, 11, 1869; Dall, Bull. 37, U. S. N. M., p. 142, '89.

Distribution.—Charlotte Harbor, West Fla. to Jamaica. Pliocene to Recent.

nitidum Stimpson, Pr. Bost. Soc. N. H., 4, p. 112, 1851, (as *Caecum*); Tryon, Man., 8, p. 222, pl. 67, f. 73, '86; Dall, Tr. W. I. S., 3, p. 302, 1892; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903.

Distribution.—West Florida, at Tampa and Crooked Isl. (Calhoun Co.), to Jamaica.

Genus **BIVONIA** Gray

exerta Dall, Bull. M. C. Z., Harvard Coll., 9, p. 39, 1881; 18, p. 264, pl. 26, f. 6, '89; Bull. 37, U. S. N. M., p. 144, pl. 26, f. 6, '89.

Distribution.—Cape Lookout, N. C., to Barbados. Gulf of Mexico, West Florida and Texas regions, deep water. 31-1002 fms.

Genus **VERMICULARIA** Lamarck

spirata Philippi, Arch. fur Naturg. 2, pt. 1, 224, pl. 7, f. 1, 1836, (as *Vermiculus*); Tryon, Man., 8, p. 187, pl. 55, f. 99, 100, '86; Dall, Bull. 37, U. S. N. M., p. 144, pl. 51, f. 4, '89; Tr. W. I. S., 3, p. 304, '92; Singley, 4th Ann. Rept. G. S. Tex., p. 340, '92. Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 123, 1915.

Distribution.—Massachusetts to the West Indies. Gulf coast: West Florida; Matagorda and Corpus Christi Bays, and Quintana, Tex. Pliocene of Shell Creek, &c, Fla.

Note.—Moerch described as *V. melanosclera* (Pr. Zool. Soc., p. 174, 1861) a form from Vera Cruz which Tryon regarded as a variety of *spirata*, and on the same page of the Proceedings Moerch described *V. quadrangularis* from Yucatan. This was also regarded by Tryon as a variety of *spirata* (See

Tryon's Manuel, 8, p. 187, 1886). Shells from the Gulf, Blake station 36, at 24 fms., have been referred by Dall to *V. lumbricalis* Linn. (See Bull. M. C. Z., 18, p. 261, '89) but the true Linnæan *lumbricalis* is Oriental.

nigricans Dall, Pr. U. S. N. M., 6, p. 334, 1883, (as *lumbricalis* var.); Bull. 37, U. S. N. M., p. 144, '89.

Distribution.—West Florida and Texas. 2-14 fms.

Genus **PETALOCONCHUS** Lea

irregularis d'Orbigny, Moll, Cuba, 1, p. 235, pl. 17, f. 16, 18, '42, (as *Vermetus*); Dall, Bull. 37, U. S. N. M., p. 144, 1889; Tr. W. I. S., 3, p. 304, '92.

Distribution.—Gulf of Mexico between Mississippi delta and Cedar Keys, Fla., at 27 fms. Also Antilles to Guadeloupe. Pleistocene of Fla. Pliocene, Caloosahatchie beds.

varians d'Orbigny, Voy. Amér Me'rid., p. 456, pl. 54, f. 7-10, 1843; Tryon, Man., 8, p. 170, pl. 49, f. 22, 23, '86; Dall, Tr. W. I. S., 3, p. 305, '92.

Distribution.—Southwest Florida to Rio de Janeiro. Pliocene, Caloosahatchie beds. Oligocene, Tampa silex beds.

erectus Dall, in Agassiz, Three Cruises of the Blake, 2, p. 71, f. 297, '88; Bull. M. C. Z., 18, p. 262, pl. 38, f. 4, '89; Bull. 37, U. S. N. M., p. 144, pl. 38, f. 4, '89.

Distribution.—Antilles and West Florida. 37-805 fms. Pliocene, Caloosahatchie River, Fla.

Genus **SIPHONIUM**

nebulosum Dillwyn, 2, p. 1076, No. 19; Tryon, Man., 8, p. 184, pl. 54, f. 87, 1886; Dall, Bull. 37, U. S. N. M., p. 144, '89.

Distribution.—East and West Florida to Tortola.

Genus **SILIQUARIA** Bruguiere

squamata Blainville, Dict. des Sci. Nat., 49, f. 213; Tryon, Man.,

8, p. 190, pl. 58, f. 25, '86; Dall, Bull. 37, U. S. N. M., p. 144, '89.

Distribution.—Sarasota, West Florida, to Barbados. 2-163 fms.

modesta Dall, Bull. M. C. Z., Harv. Coll., 9, p. 39, '81; Agassiz, Three Cruises of the Blake, 2, p. 71, f. 296, '88; Dall, Bull. M. C. Z., 18, p. 260, pl. 26, f. 4, '89; Bull. 37, U. S. N. M., p. 144, pl. 26, f. 4, '89.

Distribution.—Off Cedar Keys, West Florida, to Curacao Isl. 94-805 fms.

Genus **TURRITELLA** Lamarck

(**Haustator**) **variegata** Linnæus, Syst. Nat., ed. X, p. 767, 1758, (as *Turbo*); Reeve, Conch. Icon., 5, pl. 5, f. 19, '49; Tryon, Man., 8, p. 198, pl. 61, f. 58, '86; Dall, Bull. 37, U. S. N. M., p. 144, '89.

Distribution.—Matagorda and Espiritu Santo Bays, Texas to Cartagena, Colombia, and Antilles. Pleistocene Knapp's wells, Terrebonne Parish, La.. No. 1 at 1660-1700, 2250-2450 (?), No. 2 at 1434-1800, No. 3 at 1330-1375 feet.

(**Haustator**) **yucatecana** Dall, Bull. M. C. Z., 9, p. 93, 1881; 18, p. 265, pl. 26, f. 3, '89; Bull. 37, U. S. N. M., p. 144, pl. 26, f. 3, '89.

Distribution.—Gulf of Mexico, Yucatan Strait, 640 fms.

(**Torcula**) **exoleta** Linnæus, Syst. Nat., ed. X, p. 766, 1758, (as *Turbo*); Reeve, Conch. Icon., 5, pl. 6, f. 22, 1849; Tryon, Man., 8, p. 205, pl. 98, 99, 1886; Dull, Bull. 37, U. S. N. M., p. 144, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 429, 1901.

Distribution.—West Florida, in 50 fms.; Texas coast. Antilles to Barbados. 45-170 fms.

(**Torcula**) **acropora** Dall, Bull. M. C. Z., 18, p. 264, 1889; Bull. 37, U. S. N. M., p. 144, '89.

Distribution.—Hatteras to Grenada Isl. Gulf of Mexico, West of Florida, at 14-50 fms., and the coast of Texas, Vera Cruz and Yucatan. 3-413 fms. The Pliocene, closely related form is *T. subannulata* Heilprin of the Caloosahatchie marl.

chipolana Dall, Trans. Wagner Inst. Sci., 3, p. 312, pl. 22, f. 24, 1892.

Distribution.—Lower Miocene of the Chipola beds, West Florida, and of the Bascom No. 2 well, Mobile, Ala., at 1241 feet, Chipola horizon. Aldrich's collection.

subgrundifera Dall, Trans. Wagner Inst. Sci., 3, p. 313, pl. 22, f. 23, 1892.

Distribution.—Lower Miocene, Chipola beds, Calhoun Co., West Fla., and of the Bascom No. 2 well, Mobile, Ala., at 1241 feet, Aldrich's collection. A varietal form was recorded by Harris from the Upper Miocene, Galveston well, at 2552-2920 feet.

terebriformis Conrad, Cat. Mio. Foss., Pr. A. N. S. Phila., p. 568, 1863, (Name only); Dall, Tr. W. I. S., 3, p. 311, 1892.

Distribution.—Lower Miocene, Chipola marl, Fla., and of the Bascom No. 1 well, Mobile, Ala., at 1500-1556 feet. Aldrich's collection. Also Chesapeake Miocene of Easton, Md. (Conrad's type locality).

satilla Dall, Proc. U. S. N. M., p. 233, pl. 22, f. 6, 1914.

Distribution.—Upper Miocene or Pliocene. Well near Alexandria, La., at 49 feet. Brackish water formation.

Genus **MATHILDA** Semper

yucatecana Dall, Bull. M. C. Z., 9, p. 90, 1881, (as *Bittium*); 18, p. 266, pl. 20, f. 7, '89; Bull. 37, U. S. N. M., pl. 20, f. 7, '89.

Distribution.—Gulf of Mexico, Yucatan Strait, 640 fms.

Also off Georgia and Fernandina, East Florida. Least depth, 294 fms.

Genus **LITTORINA** Ferussac

ziczac Gmelin, Syst. Nat., p. 3587, 1792, (as *Trochus*); Reeve, Conch. Icon., 10, pl. 11, f. 57, 1857; Tryon, Man., 9, p. 251, pl. 45, f. 5, 1887; Dall, Bull. 37, U. S. N. M., p. 146, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 429, 1901.

Distribution.—Florida Keys west to Texas and South to Barbados.

augulifera Lamarck, Anim. s. Vert., 7, p. 54, 1882, (as *Phasianella*); Dall, Bull. 37, U. S. N. M., p. 146, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 430, 1901.

Distribution.—West Florida and Texas to the Antilles and Cartagena, Colombia.

mespilum Muhlfeld, Verh. Berl. Ges. Nat., 1, p. 219, pl. 8, f. 8, 1824, (as *Helix*); Tryon, Man., 9, p. 252, pl. 45, f. 16, 1887; Dall, Bull. 37, U. S. N. M., p. 146, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 430, 1901.

Distribution.—Texas to Barbados.

irrorata Say, Jour. A. N. S. Phila., (1), 2, p. 239, 1822, Tuomey and Holmes, Pl. Foss. S. Car., p. 119, pl. 26, f. 5, 1857; Post.—Pl. Foss. S. Car., p. 91, pl. 14, f. 5, 1860; Tryon, Man., 9, p. 246, pl. 43, f. 48, '87; Dall, Bull. 37, U. S. N. M., p. 146, pl. 69, f. 6, '89; Tr. W. I. S., 3, p. 320, '92; Singley, 4th Ann. Rept. G. S. Texas, p. 340, '92; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 121, 1915.

Distribution.—Massachusetts to Jamaica. Gulf coast: Cedar Keys, and Calhoun and Washington Cos., West Fla., Chandeleurs, Weeks Island, Point au Fer, La.; Matagorda, Espiritu Santo Bays and Galveston, Tex. Pleistocene, New Orleans pumping station No. 7.

Genus **LITIOPA** Rang

bombix Kiener, Ann. des Sci. Nat., p. 203, 1829; Ann. des Sci., 30, p. 222, pl. 17, B. f. 1-3, 1833; Tryon, Man., 9, p. 281, p. 53, f. 74, 1887; Dall, Bull. 37, U. S. N. M., p. 148, '89; Singley, 4th Ann. Rept. Tex., p. 340, '92; Dall, Bull. 112, U. S. N. M., p. 155, 1921, Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 119, 1915.

melanostoma (Rang) Sumner, Bull. U. S. Bur. Fish., 31, pt. 2, p. 720, 1913.

Distribution.—New England to Brazil. Gulf coast at Cameron, La.; Corpus Christi and Galveston, Tex. Also Pacific. California coast. Pelagic on floating *Sargassum*.

Genus **TECTARIUS** Valenciennes

muricatus Linnæus, Syst. Nat., ed X, p. 1758, (as *Turbo*); Reeve, Conch. Icon., 10, pl. 2, f. 11, 1857, (as *Littorina*); Tryon, Man., 9, p. 258, pl. 48, f. 68, 1887; Dall, Bull. 37, U. S. N. M., p. 146, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 431, 1901.

Distribution.—East Florida and West Florida and Antilles to Colon.

Genus **ECHINELLA** Swainson

nodulosa Pfeiffer, Tryon, Man., 9, p. 258, pl. 48, f. 75, 1887, (Excl. syn.); Dall, Bull. U. S. N. M., p. 146, '89; Dall, and Simpson, Bull. U. S. Fish Com., 1, p. 431, 1901.

Distribution.—North Carolina to Barbados and Texas.

Genus **ISAPIS** H. & A. Adams

obsoleta Dall, Proc. U. S. N. M., 46, p. 233, pl. 22, f. 8, 1914.

Distribution.—Upper Miocene or Pliocene. Well near Alexandria, La., at 49 feet.

Genus **ALABA** A. Adams

tervaricosa C. B. Adams, Pr. Bost. Soc., N. H., 2, p. 6, 1845, (as *Rissoa*); Moersch, Malak, Blatt., 23, p. 57, 1876; Dall, Bull. U. S. N. M., p. 146, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 431, 1901.

Distribution.—Tampa, West Fla., to Haiti.

Genus **ARCHITECTONICA** Bolten

granulata Lamarck, Anim. s. Vert., 7, p. 3, 1822; Ency. Méth., pl. 446, f. 5a-b, 1792, (as *Solarium*); Dall, Tr. W.I.S., 3, p. 329, 1892; Pr. U. S. N. M., 37, p. 232, 1910; Maury, Bull. Amer. Pal., No. 29, p. 131, pl. 23, f. 3, 1917.

perspectiva Tuomey and Holmes, Pl. Foss. S. Car., p. 120, pl. 26, 1857. Not of Linnæus nor Lamarck.

Distribution.—Hatteras to the Antilles. Gulf coast at Chandeleurs, La., Matagorda and other localities, Tex. Also Pacific Ocean, Lower California to Peru. Pleistocene, New Orleans pumping station No. 7; Upper Miocene, Galveston well at 2158-2871 feet. Lower Miocene, Chipola marl, West Fla., and Dominican Republic.

Genus **TORINIA** Gray

cylindrica Gmelin, Syst. Nat., p. 3572, 1792, (as *Trochus*); Tryon, Man., 9, p. 17, pl. 5, f. 82, 1887; Dall, Bull. 37, U. S. N. M., p. 148, '89; Dall and Sampson, Bull. U. S. Fish Com., 1, p. 432, 1901.

Distribution.—Texas to St. Thomas, W. I.

canalifera C. B. Adams. Dall, Bull. 37, U. S. N. M., p. 148, 1889.

Distribution.—Texas to Guadeloupe.

Genus **RISSEA** Freminville

precipitata Dall, Bull. M. C. Z., 18, p. 279, pl. 19, f. 1, 1889; Bull. 37, U. S. N. M., p. 148, pl. 19, f. 1, '89.

Distribution.—Gun Cay, East Fla., 498 fms., Yucatan Strait at 640 fms.

acuticostata Dall, Bull. M. C. Z., 18, p. 280, pl. 19, f. 10, 1889; Bull. 37, U. S. N. M., p. 150, pl. 19, f. 10, '89.

Distribution.—Yucatan Strait, 640 fms., and between Mississippi delta and Cedar Keys, 32 fms. Also off Hatteras and Barbados. Probably a variety of *R. xanthias* Watson (Chall Gastr., p. 588, pl. 44, f. 5, 1885).

Genus **RISSOINA** d'Orbigny

decussata Montagu, Test. Brit., p. 399, 1803, (as *Turbo*); Schwartz von Mohrenstern, Denkschr. d. Kais. Akad. d. Wissensch. Wien. 19, p. 80, f. 12, 1860; Tryon, Man., 9, p. 385, pl. 58, f. 15, 1887; Dall, Bull. M. C. Z., 18, p. 281, '89; Tr. W. I. S., 3, p. 343, '92.

Distribution.—Cape Fear, N. C., to Haiti and to West Fla. 2-17 fms. Also European. Variety *planata* Dall, Caloosahatchie Pliocene.

laevigata C. B. Adams, Contr. Conch., p. 114, 1850; Schwartz von Mohrenstern, Denk. Kais. Ak. Wien., 19, p. 111, f. 79, 1860; Tryon, Man., 9, p. 390, pl. 59, f. 48, '87; Dall, Tr. W. I. S., 3, p. 342, '92.

Distribution.—Cape Lookout, N. C., to St. Thomas, W. I. Also West Florida. 0-22 fms. Pliocene, Caloosahatchie beds. Lower Miocene, Chipola beds, West Fla.

chesneli Michaud, Descr. des Coq. Nouv., p. 17, 1832, (as *Rissoa*); Tryon, Man., 9, p. 380, pl. 56, f. 73, '87; Dall, Tr. W. I. S., 3, p. 343, '92; Singley, 4th Ann. Rept. Tex., p. 341, '92.

Distribution.—Hatteras to Guadeloupe, Gulf coast: Cedar Keys, Fla.; Corpus Christi, Tex. Also Mediterranean and Mauritius. Pliocene, Caloosahatchie beds, West Fla.

browniana d'Orbigny, Moll, Cuba, 2, p. 28, pl. 12, f. 33, 35, '42:

Tryon, Man., 9, p. 390, pl. 59, f. 45, '87; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903.

Distribution.—West Indies and Gulf coast, Crooked Island, Calhoun Co., West Fla. (Vanatta).

elegantissima d'Orbigny, Moll. Cuba, 2, p. 26, pl. 12, f. 27-29, 1853; Tryon, Man., 9, p. 374, pl. 56, f. 51, 1887.

Distribution.—West Indies and Gulf coast, Chandeleurs, La. (Dall).

sagraiana d'Orbigny, Moll. Cuba, 2, p. 25, pl. 12, f. 4, 5, 1852; Tryon, Man., 9, p. 384, pl. 57, f. 86, 1887; Dall, Bull. 37, U. S. N. M., p. 150, '89.

Distribution.—Florida Strait, to Martinique. Also Gulf coast at Vera Cruz, Mex.

Genus **BENTHONELLA** Dall

nisonis Dall, Bull. M. C. Z., 18, p. 283, 1889; Bull. 37, U. S. N. M., p. 150, '89.

Distribution.—Gulf of Mexico between Mississippi delta and Cedar Keys at 940 fms.

gaza Dall, Bull. M. C. Z., 18, p. 282, '89; Bull. 37, U. S. N. M., p. 150, pl. 42, f. 5, '89.

Distribution.—Georgia to Cuba, West Florida and Texas regions of the Gulf. 6-463 fms.

fischeri Dall, Bull. M. C. Z., 18, p. 282, '89; Bull. 37, U. S. N. M., p. 282, '89.

Distribution.—Gulf of Mexico between Mississippi delta and Cedar Keys at 940 fms., bottom temperature 39° F. Also off Cuba.

Genus **SKENEA** Fleming

planorbis Fabricius, Fauna Groenlandica, p. 394, 1780; Gould, Inv. Mass., p. 296, f. 563, 1870; Dall, Bull. 37, U. S. N. M., p. 150, pl. 52, f. 18, 1889; Bush, Tr. Conn. Acad. Sci.,

10, p. 100, pl. 23, f. 5, 8, '99-1900; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 119, 1915.

Helix depressus Montagu.

Distribution.—Greenland (type locality) to Charlotte Harbor, West Florida. This species is the genotype.

Genus **AMPULLARIA** Lamarck

depressa Say, Dall, Bull. 37, U. S. N. M., p. 150, '89.

Distribution.—Georgia to West Florida, Texas and Mexico.

caliginosa Reeve, Conch. Icon., Mon. *Ampullaria*, f. 118, pl. 25, 1856; Dall, Proc. U. S. N. M., 8, p. 255, 1885; Bull. 37, U. S. N. M., p. 150, 1889.

Distribution.—Cedar Keys, West Florida to Texas, Mexico and Nicaragua. In freshwater swamps.

pinei Dall, The Nautilus, p. 75, Nov. 1898.

Distribution.—Homosassa River, Fla.

Genus **PALUDESTRINA** d'Orbigny

aldrichi Dall, Proc. U. S. N. M., 46, p. 234, pl. 22, f. 7, 1914.

Distribution.—Upper Miocene or Pliocene. Well near Alexandria, La., at 49 feet. Brackish water formation.

plana Aldrich, Nautilus, 24, pt. 12, p. 139, pl. 8, f. 3, 1911; Dall, Pr. U. S. N. M., 46, p. 234, 1914.

Distribution.—Upper Miocene or Pliocene. Well near Alexandria, La., at 49 feet. Also Satilla River, Ga., (type locality).

curva Dall, Proc. U. S. N. M., 46, p. 235, pl. 22, f. 4, 1914.

Distribution.—Upper Miocene or Pliocene. Well near Alexandria, Ga., at 49 feet.

cingulata Dall, Proc. U. S. N. M., 46, p. 235, pl. 22, f. 1, 1914.

Distribution.—Upper Miocene or Pliocene. Well near Alexandria, La., at 49 feet.

turricula Dall, Proc. U. S. N. M., 46, p. 235, pl. 22, f. 9, 1914.

Distribution.—Upper Miocene or Pliocene. Well near Alexandria, La., at 49 feet. Brackish water formation.

milium Dall, Proc. U. S. N. M., 46, p. 235, pl. 22, f. 2, 1914.

Distribution.—Upper Miocene or Pliocene.. Well near Alexandria, La., at 49 feet.

Genus **ASSIMINEA** Leach

auberiana d'Orbigny, Moll. Cuba, 2, p. 8, pl. 10, f. 6, 7, 1842, (as *Paludestrina*); Dall, Pr. U. S. N. M., 6, p. 335, 1883; Bull. 37, U. S. N. M., p. 150, '89; Tr. W. I. S. 3, p. 347, 1892.

Distribution.—Cedar Keys, West Florida, and the Antilles. Pliocene, Caloosahatchie and Shell Creek, West Fla.

Genus **TRUNCATELLA** Risso

caribaeensis Sowerby (MSS.); Reeve, Conch. Syst. 2, pl. 182, f. 7, 1842; Binney, Land & Fr-Water Shells, N. A. Smith. Misc. Coll., No. 144, pt. 3, p. 98, pl. 198, 1865; Dall, Bull. 37, U. S. N. M., p. 152, '89; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 436, pl. 53, f. 7, 1901.

Distribution.—West Florida, Alabama, Texas (?) and Mexico. Also Greater Antilles.

bilabiata Pfeiffer, Wieg. Arch., 1, p. 253, 1840; Binney, L. and Fr. W. Sh. N. A., pt. 3, p. 99, f. 199, 1865; Dall, Bull. 37, U. S. N. M., p. 152, '89.

Distribution.—Sarasota, West Florida, to Honduras and Cuba.

pulchella Pfeiffer, Wieg. Arch., 1, p. 356, 1839; Binney, L. and Fr. W. Sh. N. A., pt. 3, p. 99, f. 200, 1865; Dall, Bull. 37, U. S. N. M. p. 152, '89; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 436, 1901.

Distribution.—Florida to St. Thomas, W. I. Gulf coast:

Tampa, West Florida; Galveston, Texas. (Dr. Gurley).

subcylindrica Linnæus, Syst. Nat., ed. XII, p. 1248, 1767, (as *Helix*); Gray, in Turton, Man., p. 295, f. 72, 1857; Binney, Land and Fr. W. Sh. N. A., pt. 3, p. 100, f. 201, 1865; Dall and Simpson, Bull. U.S. Fish Com., p. 436, 1901.

Distribution.—Tampa, West Fla., to St. Thomas, W. I.

Genus **CHEILEA** Modeer

equestris Linnæus, Syst. Nat., ed. X, p. 780, 1758, (as *Patella*); Tryon, Man., 8, p. 137, pl. 41, f. 25, 26, 1886; Dall, Tr. W. I. S., 3, p. 348, '92, (as *Mitrularia*); Pr. U. S. N. M., 37, p. 232, 1910.

Distribution.—Hatteras to Barbados, Gulf of Mexico, Blake station 2. Also Pacific Ocean, Mexico to Chile. Pliocene, Caloosahatchie beds, Fla.

Genus **CAPULUS** Montfort

intortus Lamarck, Anim. s. Vert., 6, pt. 2, p. 18, 1822; d'Orbigny, Moll. Cuba, 1, p. 186, pl. 24, s. 22, 23, 1842; Tryon, Man., 8, p. 131, pl. 39, f. 75, '86; Dall, Bull. 37, U. S. N. M., p. 154, '89.

Distribution.—Gulf of Mexico, Blake station 5, at 229 fms. Also off Florida reefs, Hatteras and Bahamas.

Genus **CREPIDULA** Lamarck

fornicata Linnæus, Syst. Nat., ed. XII, 1, p. 1257, 1767, (as *Patella*); Hilgard, House of Rep. Ex. Doc., 1, pt. 2, p. 887, 1878; Dall, Bull. 37, U. S. N. M., p. 152, pl. 48, f. 16, pl. 50, f. 23, 24, 1889; Tr. W. I. S., 3, p. 356, '92; Singley, 4th Ann. Rept. Tex., p. 341, '92; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 109, 1915.

Distribution.—Granada to Cartagena, Colombia. Gulf coast: Cedar Keys, St. Mark's, Ft. Barranca, &c., West Fla., La., Galveston and Corpus Christi, Tex. Pleistocene, Lake

Borgne borings, New Orleans well of 1856, and New Orleans pumping station No. 7. Pliocene, Caloosahatchie beds. Lower Miocene Chipola beds, West Fla.

plana Say, Jour. A. N. S. Phila., (1), 2, p. 226, 1822; Tuomey and Holmes, Pl. Foss. S. Car., p. 111, pl. 25, f. 12, 1857; Dall, Bull., 37, U. S. N. M., p. 152, pl. 48, f. 12, pl. 50, f. 26, '89; Tr. W. I. S., 3, p. 358, '92; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 110, 1915.

Distribution.—Canada to Trinidad, W. I. Gulf coast: Cedar Keys, St. Mark's, Fla.; Chandeleurs, La.; Galveston, Corpus Christi and Matagorda Bays, Texas. Pleistocene, New Orleans pumping station No. 7 and North Creek, Fla. Pliocene, New Orleans Gymnasium Club well at 1200 feet, and Caloosahatchie beds, Fla. Lower Miocene Chipola beds, West Fla. and of the Bascom No. 1 well, Mobile, Ala., at 1500-1556 feet, Chipola horizon.

aculeata Gmelin, Syst. Nat., 7, p. 3693, 1792, (*Patella*); Tryon, Man., 8, p. 129, pl. 39, f. 61-62, 1886; Dall, Bull. M. C. Z., 18, p. 286, 1889; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903; Dall, Bull. 112, U. S. N. M., p. 162, 1921.

Distribution.—Cape Lookout, N. C., to Barbados. Gulf coast: Indian Pass, West Fla., and Texas. Usually 0-25 fms., but dredged in Gulf of Mexico, near Tortugas at 539 fms. Dwarfed and white at that depth. Also Pacific Ocean, California to Chile. Pliocene, Caloosahatchie beds, West Florida.

convexa Say, Jour. A. N. S. Phila., (1), 2, p. 227, 1822; Dall, Bull. 37, U. S. N. M., p. 152, pl. 50, f. 25, 1889; Tr. W. I. S., 3, p. 357, '92.

Distribution.—Nova Scotia to Florida. Gulf coast: West Fla.; Chandeleurs, La.; Galveston, Tex. Pleistocene, North Creek, West Fla.

Genus **CRUCIBULUM** Schumacher

auricula Gmelin, Syst. Nat., p. 3694, 1780, (as *Patella*); Dilwyn's Cat., 2, p. 1017, 1817; Dall, Bull. M. C. Z., 18, p. 284, '89; Bull. 37, U. S. N. M., p. 152, '89.

planatum Schumacher, Essai, p. 182, 1817.

scutellatum var. *auriculatum* (Chemn.) Tryon, Man., 8, p. 118, pl. 32, f. 34, 35, 1886.

Distribution.—Cedar Keys, West Fla., and Texas, south to Barbados and Northern Brazil, 25-111 fms. Pliocene, Caloosahatchie beds, West Fla. The analogous Pacific species is *C. spinosum*.

striatum Say, Jour. A. N. S. Phila., 5, p. 216, 1826; (as *Calyptrea*); Tryon, Man., 8, p. 118, pl. 33, f. 44, 45, '86; Dall, Bull. M. C. Z., 18, p. 284, '89; Johnson, Occ. Pa. Bost. Soc., N. H., 7, p. 109, 1915.

Distribution.—Nova Scotia to Florida. Cited by Dr. Dall from the Gulf of Mexico at Vera Cruz.

Genus **CALYPTRAEA** Lamarck

candeana d'Orbigny, Moll. Cuba, 2, p. 100, pl. 24, f. 28, 29, 1842, (as *Infundibulum*); Dall, Pr. U. S. N. M., 6, p. 335, '83, (as *Galerus*); Tryon, Man., 8, p. 121, pl. 34, f. 76, 77, 1886; Dall, Bull. 37, U. S. N. M., p. 152, '89.
parvulus Dunker, 1875.

Distribution.—Hatteras to Brazil. 6-52 fms. Gulf of Mexico, Cedar Keys, West Florida, and Yucatan Strait, 640 fms., dead shell.

Genus **XENOPHORA** Fischer de Waldheim

conchyliophora Born, Index Mus. Cæs., p. 333, 1778, (as *Trochus*); Tryon, Man., 8, p. 161, pl. 46, f. 89, '86; Dall, Bull. 37, U. S. N. M., p. 154, '89; Tr. W. I. S., 3, pp. 360-362, pl. 4, f. 10, 10a, '92; Bull. 90, U. S. N. M., p. 105, pl. 15, f. 1.

3, '15; Maury, Bull. Amer. Pal., No. 29, p. 133, pl. 23, f. 7, 1917.

agglutinans Lamarck.

Distribution.—Hatteras to the Antilles. Gulf of Mexico, West Florida and dredged at various stations, 14-229 fms. Usually not so deep as *X. caribaea* and more heavily loaded. Pliocene, Caloosahatchie beds, West Fla. Lower Miocene, Chipola marl, West Fla. Oligocene, Tampa silex beds, Fla. Upper Eocene, Jackson, Miss. Eocene, Wood's Bluff, Ala. Upper Cretaceous, (Ripley) of Prairie Bluff, Ala. The most ancient species of the Gulf Mollusca.

caribaea Petit, Jour. de Conch., 5, p. 248, pl. 10, f. 1, 2, 1856; Tryon, Man., 8, p. 162, pl. 47, f. 96, '86; Dall, Bull. M. C. Z., 18, p. 291, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 438, 1901.

Distribution.—Hatteras to Barbados and Gulf of Mexico, various stations, 14-274 fms.

Genus NATICA Scopoli

livida Pfeiffer, Wieg. Arch., 6, p. 254, 1840; Moersch, Malak. Blatt., 24, p. 64, '77; Dall, Bull. M. C. Z., 18, p. 292, '89; Bull. 37, U. S. N. M., p. 154, '89.

jamaicensis C. B. Adams, Contr. Conch., p. 111, 1850.

proxima Sowerby, Thesaurus, *Natica*, pl. 8, f. 111. Not of C. B. Adams.

Distribution.—Hatteras to Barbados. Gulf of Mexico, between the Mississippi delta and Cedar Keys, 26 fms.

maroccana Chemnitz, Conch. Cab., 5, p. 270, pl. 188, f. 1905-10; Dillwyn, Cat. Rec. Sh., 2, p. 983, No. 13, 1817; Dall, Bull. M. C. Z., 18, p. 292, 1889; Bull. 37, U. S. N. M., p. 154, 1889.

Distribution.—Hatteras to Barbados and Gulf of Mexico, west of Florida. Also European and West African.

canrena Linnæus (in part) Syst. Nat., ed. X, p. 776, 1758, (as *Nerita*); Reeve, Conch. Icon., 9, pl. 4, f. 14, 1855; Tuomey and Holmes, Pl. Foss. S. Car., p. 115, pl. 25, f. 17, 1857; Dall, Bull. 37, U. S. N. M., p. 154, '89; Tr. W. I. S., 3, p. 364, '92; Maury, Bull. Amer. Pal., No. 29, p. 134, pl. 23, f. 10, 1917.

plicatella Conrad, Pr. A. N. S. Phila., p. 564, 1863.

Distribution.—Hatteras to the Antilles, Pernambuco and Cartagena. Gulf coast, West Florida and Galveston. Pliocene, Caloosahatchie beds, Upper Miocene, Galveston well at 2158-2920 feet. Lower Miocene, Bascom No. 2 well, Mobile, Ala., at 1241 feet, Chipola horizon.

alticallosa Dall, Trans. Wagner Inst. Sci., 3, p. 365, pl. 22, f. 28, 1892.

Distribution.—Lower Miocene, Chipola marl, Northwest Florida, and of the Bascom No. 2 well, Mobile, Ala. at 1241 feet, Chipola horizon.

Subgenus **Cryptonatica** Dall

pusilla Say, Jour. A. N. S. Phila., 2, p. 257, 1822; Hilgard House of Rep. Ex. Doc., 1, pt. 2, p. 886, 1878; Dall, Bull. 37, U. S. N. M., p. 154, pl. 50, f. 21, '89; Singley, 4th Ann. Rept. Tex., p. 341, '92; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 105, 1915.

Distribution.—Maine to Florida Keys. Gulf coast: St. Joseph's Bay and Crooked Island, West Fla., Galveston, Tex. Pleistocene, New Orleans artesian well of 1866, Lake Borgne borings, Knapp's wells, Terrebonne Parish, La., No. 3, at 1150-1200, 1330-1470, 1500-1525 feet. Pliocene Caloosahatchie beds, and of the New Orleans Gymnasium Club well at 1200 feet.

Genus **POLINICES** Montfort

Subgenus **Euspira** Agassiz

tenuis Recluz, Jour. de Conch., 1, p. 388, pl. 12, f. 7, 1850;

Tryon, Man., 8, p. 38, pl. 14, f. 25, '88; Dall, Bull. M. C. Z., 18, p. 295, '89; Bull. 37, U. S. N. M., p. 154, 1889; (All as *Lunatia*).

Distribution.—Gulf of Mexico, Yucatan Strait, 640 fms. Also off Cape Florida, Cape Fear and Cuba, 84-640 fms. Also Pacific Ocean, Valparaiso, Chile, Recluz's type locality.

leptalea Watson, Jour. Linn. Soc., 15, p. 261, 1880; Dall, Bull. M. C. Z., 9, p. 93, '81; Watson, Chall. Rept. Gastr., p. 441, pl. 27, f. 7, '85; Dall, Bull. M. C. Z., 18, p. 295, '89. (All as *Lunatia*).

Distribution.—Yucatan Strait, 640 fms. Also off Fernandina, Fla., and Sombrero Isl., 450 fms,

fringilla Dall, Bull. M. C. Z., 9, p. 93, 1881; 18, p. 295, pl. 21, f. 12, '89; Bull. 37, U. S. N. M., p. 154, pl. 21, f. 12, '89. (All as *Lunatia*).

Distribution.—Yucatan Strait, 640 fms. Also near Old Providence, 382 fms. *L. radiata* Watson, may be identical with this species.

hemicypta Gabb, Jour. A. N. S. Phila., (2), 4, p. 375, pl. 67, f. 5, 1860; (as *Natica*); Dall, Bull. 90, U. S. N. M., p. 106, pl. 9, f. 9, 1915.

eminuloides Gabb, Jour. A. N. S. Phila., (2), 8, p. 339, pl. 44, f. 4, 1875.

Distribution.—Upper Miocene, Galveston well at 2465-2733 feet, and of the Jennings-Heywood No. 29 well, Jennings, La., at 1960-1980 feet. Lower Miocene, Chipola marl, West Fla. Oligocene, Tampa silex beds.

Subgenus **NEVERITA** Risso

duplicata Say, Jour. A. N. S. Phila., 2, p. 247, 1822, (as *Natica*); Dall, Bull. 37, U. S. N. M., p. 154, pl. 51, f. 12, '89; Tr.

W. I. S., 3, p. 368, '92; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 105, 1915.

campechiensis Recluz, *fossata* Gould, *texasiana* Roemer.

Distribution.—Massachusetts to Mexico. Gulf coast: Cedar Keys, and many other localities, West Fla., Horn Island, Miss.; Point au Fer, Cameron, Chandeleurs, La.; Matagorda Bay and Galveston, Tex. Pleistocene, Grand Chenier, New Orleans well of 1856, New Orleans pumping station No. 7, Zigler, No. 15, Jennings, La., at 1350-1481 feet, Jennings-Heywood No. 30 well at 1127-1169, 1169-1277 feet. Knapp's wells, Terrebonne Parish, No. 2, at 1150-1200, 1330-1375, 1443-1618, 1700-1839 feet. Pliocene Gymnasium Club well at 1200 feet. Chesapeake Miocene, Maryland to Florida. Upper Miocene, Galveston well at 2158-2920 feet. Miocene, Crowley No. 25 well, Jennings, La., at 2468-2500 feet.

Subgenus **Payraudeautia** Bucq. Dautz. & Dollf.

nubila Dall, Bull. M. C. Z., 18, p. 294, 1889, (as *Neverita*); Dall and Simpson, Bull. U. S. Fish Com., 1, p. 439, pl. 58, f. 6, 1901.

Distribution.—Gulf of Mexico, Blake station 23, at 190 fms. Also off Barbados, 140 fms, and Porto Rico.

Subgenus **Mammilla** Schumacher

uberina d'Orbigny, Moll. Cubana, 2, p. 31, pl. 17, f. 19, 1842, (as *Natica*); Moersch, Malak. Blatt., 24, p. 60, 1877; Tryon, Man., 8, pl. 16, f. 57, '86; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 439, 1901.

Distribution.—Gulf of Mexico, west coast of Florida, 14-40 fms., living. Also off Sombrero 54-70 fms. and Porto Rico.

lactea Guilding, Tr. Linn. Soc., 17, p. 29, '33; (as *Naticina*); Tryon, Man, 8, p. 49, pl. 16, f. 57, 58, '86; Dall, Bull. 37,

U. S. N. M., p. 156, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 439, 1901.

Distribution.—Florida Keys to Porto Rico and Brazil. Also Texas region of the Gulf of Mexico. West Fla. (?).

brunnea Linck, Besch. der Rostock Sammlung, 2, p. 140, 1807; Dall, Bull. 37, U. S. N. M., p. 156, '89.

mamillaris Lamarck, Anim. s. Vert., 6, pt. 2, p. 197, '22, (as *Natica*), Tryon, Man., 8, p. 43, pl. 18, f. 74, '86; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 439, 1901.

Distribution.—Florida Keys to Trinidad Island and Texas region of the Gulf of Mexico.

Genus **SINUM** Bolten

prespectivum Say, Amer. Conch., p. 175, pl. 25, (as *Sigaretus*); Holmes, Post-Pl. Foss. S. Car., p. 81, pl. 12, f. 16, '60; Tryon, Man., 8, p. 57, pl. 24, f. 61, 64, '86; Dall, Bull. 37, U. S. N. M., p. 156, '89; Vanatta, Pr. A. N. S. Phila., 55, p. 758, 1903.

Distribution.—New York to Martinique. Gulf coast: Calhoun Co., Fla.; Chandeleurs, La.; Galveston, Mustang Isl. and Pass Cabello, Tex. Pleistocene, New Orleans pumping station No. 7, cited by Harris from Upper Miocene, Galveston well at 2252-2600 feet.

maculatum Say, Amer. Conch., p. 176, pl. 25, (as *Sigaretus*); Tryon, Man., 8, p. 56, pl. 24, f. 57, 58, '86; Dall, Bull. 37, U. S. N. M., p. 156, '89.

Distribution.—Hatteras to Guadeloupe and West Florida, shallow water. Closely related to *martinianum* Phillipi, (Abb. u. Besch. 1, p. 144, pl. 1, f. 5, 1844).

minor Dall, Bull. M. C. Z., 18, p. 297, '89, (as *Sigaretus*); Bull. 37, U. S. N. M., p. 156, '89.

Distribution.—West Florida, Florida Keys and Sombrero Isl., W. I. 54-84 fms.

Genus **EUNATICINA** Fischer

semisulcata Gray, Zool. Beechey's Voyage, p. 137, (as *Natica*): Tryon, Man., 8, p. 32, pl. 9, f. 74, '86; Dall, Bull. M. C. Z., 18, p. 296, '89; Tr. W. I. S., 3, p. 380, '92.

fordiana and *fordii* Simpson.

Distribution.—East Florida to Porto Rico. Gulf coast, Sarasota Bay, West Fla., between tides.

Genus **LAMELLARIA** Montagu

rangi Bergh, Mgr., p. 94, No. 8, '53; Dall, Bull. 37, U. S. N. M., p. 156, '89.

Distribution.—Texas region of the Gulf of Mexico. Apparently never figured.

Genus **MARSENINA** Gray

ampla Verrill, Pr. U. S. N. M., 3, p. 374, '80; Tr. Conn. Acad. Arts and Sci., 5, p. 518, pl. 42, f. 3, 3a, '82; Dall, Bull. 37, U. S. N. M., p. 156, '89; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 109, 1915.

Distribution.—Maine to Sarasota Bay, West Fla.

Genus **ACMAEA** Eschscholtz

candeana d'Orbigny, In de la Sagra's, Hist. Pol. y Nat. Isla de Cuba, 2, p. 199, pl. 25, f. 1-3, 1845, (as *Patella*); Dall, Bull. 37, U. S. N. M., p. 156, '89; Tryon, Man., 13, p. 38, '91; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 440, 1901.

Distribution.—Florida Strait to Tobago, W. I. Also West Florida and Texas.

punctulata Gmelin, Syst. Nat., 13, pp. 3705, 3717, 1792, (as *Patella*); Pilsbry, Tryon, Man., 13, p. 37, pl. 5, f. 11-13, 1891; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 440, 1901.

Distribution.—Key West, Florida to Porto Rico, Guadeloupe, and the Gulf of Mexico at Vera Cruz, Mex.

leucopleura Gmelin, Syst. Nat., 13, p. 3699, 1792, (as *Patella*); Pilsbry, Tryon, Man., 13, 7, 40, pl. 5, f. 16-21, '91; Dall & Simpson, Bull. U. S. Fish Com., 1, p. 440, 1901.

melanoleuca Dall, Bull. 37, U. S. N. M., p. 156, 1889. Not of Gmelin.

Genus **LEPETELLA** Verrill

tubicola Verrill and Smith, Amer. Jour. Sci., (3), 20, p. 396, '80; Verrill, Tr. Conn. Acad. Arts and Sci., 5, p. 534, pl. 58, f. 29, 29a, '82; Dall, Bull. M. C. Z., 18, p. 413, pl. 25, f. 6, '89; Bull. 37, U. S. N. M., p. 158, pl. 25, f. 6, '89; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 86, 1915.

Distribution.—Martha's Vineyard, Mass., at 130-388 fms., to Gulf of Mexico between Mississippi delta and Cedar Keys, at 324 fms.

Genus **PHASIANELLA** Lamarck

pulchella C. B. Adams, Proc. Bost. Soc. Nat. Hist., 2, p. 7, '45, (as *Turbo*); Tryon, Man., 10, p. 264, '88; Dall, Bull. M. C. Z., 18, p. 351, '89; Bull. 37, U. S. N. M., p. 158, 1889.

brevis C. B. Adams. Not of d'Orbigny, 1842.

Distribution.—Cedar Keys, Fla., to St. Thomas, W. I. Pliocene of South Carolina.

Genus **TURBO** Linnæus

castaneus Gmelin, Syst. Nat., p. 3595, 1792; Pilsbry, Man., 10, p. 203, pl. 45, f. 88-89, '88; Dall, Bull. 37, U. S. N. M., p. 158, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 441, 1901.

Distribution.—Cape Hatteras to Trinidad, W. I. Also West Florida in shallow water. 25-295 fms, Pliocene, Caloosahatchie and Shell Creek, Fla.

crenulatus Gmelin, Syst. Nat., p. 3575, 1788; Pilsbry, Man., 10, p. 203, pl. 45, f. 90, '88; Dall, Bull. 37, U. S. N. M., p. 158, '89; Tr. W. I. S., 3, p. 382, '92.

Distribution.—Hatteras to Barbados. 2-30 fms. Also West Florida at Crooked Island and St. Andrew's Bay. Pliocene, of the Caloosahatchie, probably a variety of *crenulatus*.

Genus **LEPTOTHYRA** (Carpenter) Pease

induta Watson, Jour. Linn. Soc., 14, p. 715, 1879 (as *Turbo*); Chall. Gastr. p. 128, pl. 6, f. 1, 1885.

albida Dall, Bull. M. C. Z., 18, p. 352, pl. 38, f. 6, '89.

Distribution.—Hatteras to Martinique, 15-2805 fms. Yucatan Strait, 640 fms.

Genus **LIVONA** Gray

pica Linnæus, Syst. Nat., 10, p. 763, 1758, (as *Turbo*); Pilsbry, Man., 11, p. 277, pl. 41, f. 24, '89; Dall, Bull. 37, U. S. N. M., p. 160, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 443, 1901.

Distribution.—Charlotte Harbor, West Florida, to Colon. 37-160 fms.

Genus **GAZA** Watson

superba Dall, Bull. M. C. Z., 9, p. 49, '81; 18, p. 354, pl. 22, f. 4, 4a, '89; Bull. 37, U. S. N. M., p. 160, pl. 22, f. 4, 4a, 1889.

Distribution.—Gulf of Mexico between Mississippi delta and Cedar Keys, 324 fms. Also Barbados.

fischeri Dall, Bull. Mus. Comp. Zool., Harv. Coll., 18, p. 355, pl. 37, f. 6, '89; Bull. 37, U. S. N. M., p. 160, pl. 37, f. 6, 1889.

Distribution.—Gulf of Mexico, west of Florida and St. Lucia, W. I., 423-426 fms.

(*Callogaza*) *watsoni* Dall, Bull. Mus. Comp. Zool., 9, p. 50, '81; 18, p. 356, pl. 22, f. 7, 7a, pl. 23, f. 1, 1a, pl. 24, f. 2, 2a. 1889.

Margarita filosa Dall, Bull. M. C. Z., 9, p. 42, '81.

Distribution.—Yucatan Strait, 640 fms. Also off Cuba and Barbados.

Genus *LIOTIA* Gray

gemmia Tuomey and Holmes, Pleioc. Fos. S. Carolina, p. 118, pl. 26, f. 4, '56, (as *Trochus*); Dall and Simpson, Bull. U. S. Fish Com., 1, p. 445, 1901.

tricarinata Stearns, Proc. Bost. Soc. Nat. Hist., p. 23, for '72; (as *Architectonica*); Dall, Bull. M. C. Z., 18, p. 389, '89; Bull. 37, U. S. N. M., p. 166, '89.

Distribution.—Hatteras to Porto Rico. Also off Tampa, West Fla., 15 fms. Pliocene, Caloosahatchie beds.

bairdi Dall, Bull. M. C. Z., 18, p. 389, pl. 33, f. 8, '89.

Distribution.—Gulf of Mexico, Blake Station 2, at 805 fms. Also off Carolina, Key West and Havana.

Genus *CALLIOSTOMA* Swainson

euglyptum A. Adams, Proc. Zool. Soc., p. 38, '54, (as *Zizyphinus*); Reeve, Mon. *Zizyp.*, pl. 3, f. 17, '63; Dall, Bull. M. C. Z., 18, p. 363, '89; Pilbry, Man., 11, p. 374, pl. 15, f. 37, pl. 57, f. 9, '89.

Distribution.—North Carolina to Florida, Texas and Vera Cruz, Mexico. Erroneously referred by Reeve to Tasmania. 3-32 fms. Pliocene ancestor is *C. philanthropus* Conrad.

circumcinctum Dall, Bull. M. C. Z., 9, p. 44, '81; 18, p. 364, pl. 22, f. 3, 3a, '89; Bull. 37, U. S. N. M., p. 162, pl. 22, f. 3, 3a, '89.

Distribution.—Florida Keys, Antilles and Yucatan Strait. 640-805 fms.

corbis Dall, Bull. Mus. Comp. Zool. Harv. Coll., 18, p. 365, pl. 33, f. 1, '89; Bull. 37, U. S. N. M., p. 162, pl. 33, f. 1, 1889.

Distribution.—Gulf of Mexico, west of Florida, to Jamaica. 220-450 fms.

tiara Watson, Jour. Linn. Soc. 14, p. 696, '79; Rept. Chall. Gastr., p. 60, pl. 6, f. 4, '85, (as *Trochus*); Dall, Bull. 37, U. S. N. M., p. 162, '89.

Distribution.—Gulf of Mexico, Texas region, to Dominica, W. I. 220-780 fms.

roseolum Dall, Bull. Mus. Comp. Zool. Harv. Coll., 9, p. 45, '81; 18, p. 366, pl. 24, f. 6, 6a, '89; Bull. 37, U. S. N. M., p. 162, pl. 24, f. 6, 6a, '89.

Distribution.—North Carolina to Yucatan. Also Florida Straits and Havana. 21-200 fms.

pulcherum C. B. Adams, Contributions to Conch., No. 5, p. 69, '50; (as *Trochus*); Pilsbry, Man., 11, p. 375, '89; Dall, Bull. 37, U. S. N. M., p. 162, '89.

Distribution.—Hatteras to St. Thomas, W. I. Texas region Gulf of Mexico. 15-63 fms. Type locality, Jamaica.

veliei Pilsbry, The Nautilus, p. 128, 1900.

Distribution.—Caxambas Pass, Southwest Florida.

(**Eutrochus**) **jujubinum** Gmelin, Syst. Nat., p. 3570, 1792, (as *Trochus*); Pilsbry, Man., 11, p. 404, pl. 40, f. 16, '89; Dall, Bull. 37, U. S. N. M., p. 162, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 444, 1901.

Distribution.—Hatteras to Cartagena, Colombia. Gulf coast, West Florida, Texas and Yucatan. Pliocene, Caloosahatchie beds, Fla.

(**Eutrochus**) **jujubinum** var. **perspectivum** Koch, Philippi, Abbild. u.

Beschr. 1, pt. 2, *Trochus*, pl. 1, f. 5, 1843; Pilsbry, Man., 11, p. 405, pl. 66, f. 35, 36, 89.

tampaensis Conrad, Pr. A. N. S. Phila., 3, p. 26, pl. 2, f. 35, '46; (as *Trochus*); Dall, Bull. 37, U. S. N. M., p. 162, '89.

Distribution.—Hatteras to Honduras. Also West Florida, shallow water.

(*Eutrochus*) *jujubinum* var. *rawsoni* Dall, Bull. M. C. Z., 18, p. 369, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 444, 1901.

Distribution.—Cedar Keys, Fla. and the Antilles.

(*Eutrochus*) *yucatecanum* Dall, Bull. M. C. Z., 9, p. 47, '81; 18, p. 370, pl. 24, f. 4, 4a, '89.

Distribution.—Yucatan Strait, 640 fms. Also off Carolina coast, 15-32 fms.

(*Dentistyla*) *asperrimum* Dall, Bull. Mus. Comp. Zool., 9, p. 40, '81, (as *Margarita*); 18, p. 373, '89; Pilsbry, Man., 11, p. 411, '89; Dall, Bull. 37, U. S. N. M., p. 162, '89.

Distribution.—Hatteras to Barbados. Also West Florida, 100-177 fms.

Genus *SOLARIELLA* S. Wood

amabilis Jeffreys, British Conch. 3, p. 300; 5, pl. 61, f. 6, (as *Trochus*); Dall, Bull. M. C. Z., 18, p. 378, '89; Pilsbry, Man., 11, p. 313, pl. 57, f. 52, '89.

Distribution.—Yucatan Strait, 640 fms. Also Antillean and European (North Sea off Shetland Isls, 85-95 fms).

scabriuscula Dall, Bull. M. C. Z., 9, p. 41, '81, (as *Margarita*); 18, p. 379, pl. 21, f. 10, 10a, '89; Bull. 37, U. S. N. M., p. 164, pl. 21, f. 10, 10a, '89.

Distribution.—Southern part of the Gulf of Mexico, 539 fms., bottom temperature 39° F. Also off Cuba.

aeglees Watson, Jour. Linn. Soc., 14, p. 704, '79; Chall. Rept. Gastr., p. 81, pl. 5, f. 10, '85; (as *Margarita*); Dall, Bull. M. C. Z., 9, p. 40, '81; 18, p. 379, '89; Pilsbry, Man., 11, p. 315, pl. 66, f. 18, 19, '89.

Distribution.—Gulf of Mexico, 287-888 fms. Also off St. Vincent, W. I.

aeglees var. **clavata** Watson, Jour. Linn. Soc. London., 14, p. 705, Chall. Rept. Gastr., p. 82, pl. 5, f. 8, (as *Margarita*); Dall, Bull. M. C. Z., 18, p. 380, '89; Pilsbry, Man., 11, p. 318, pl. 66, f. 98, 99, '89.

Distribution.—Yucatan Strait, 640 fms.; Culebra Isl., W. I. 350 fms.; Pernambuco, Brazil, 675 fms. Dall and Pilsbry regard this as a variety of *aeglees*.

lubrica Dall, Bull. M. C. Z., 9, p. 44, '81, (as *Margarita*); 18, p. 382, pl. 21, f. 9, '89; Pilsbry, Man., 11, p. 324, pl. 51, f. 25, 26, '89; Dall, Bull. 37, U. S. N. M., p. 164, pl. 21, f. 9, 9a, '89.

Distribution.—Cedar Keys, West Florida, to St. Lucia, W. I. 116-805 fms.

lubrica var. **iridea** Dall, Bull. M. C. Z., 18, p. 382, '89; Pilsbry, Man., 11, p. 324, '89; Dall, Bull. 37, U. S. N. M., p. 164, 1889.

Distribution.—Cape Florida, Gulf of Mexico, West Florida region. 193 fms.

lissoconcha Dall, Bull. M. C. Z., 9, p. 41, '81, (as *Margarita*); 18, p. 381, pl. 21, f. 8, 8a, '89; Bull. U. S. N. M., p. 164, pl. 21, f. 8, 8a, '89.

Distribution.—Gulf of Mexico, Lat 28° N., Lon. 88° W., at 331 fms.

Genus **BASILISSA** Watson

alta Watson, Jour. Linn. Soc. London, 14, p. 597, '79; Rept. Chall. Gastr., p. 100, pl. 7, f. 8, '86; Pilsbry, Man., 11, p.

419, pl. 36, f. 5, '89; Dall, Bull. 37, M. S. N. M., p. 164, 1889.

Distribution.—Gulf of Mexico, West of Cedar Keys; the Antilles and Brazil. 339-1019 fms.

alta var. **delicatula** Dall, Bull. M. C. Z., 9, p. 48, '81, (as *Seguenzia*); 18, p. 384, pl. 22, f. 2, '89; Pilsbry, Man., 11, p. 421, pl. 48, f. 3, 4, '89; Dall, Bull. 37, U. S. N. M., p. 164, pl. 22, f. 2, 2a, '89.

Distribution.—Gulf of Mexico to Tobago, W. I. 805 fms.

superba Watson, Jour. Linn. Soc. London, 14, p. 598, '79; Rept. Chall. Gartr., p. 101, pl. 7, f. 10, '86; Pilsbry, Man., 11, p. 424, pl. 36, f. 6, 7, '89; Dall, Bull. 37, U. S. N. M., p. 164, 1889.

Distribution.—Cape York, Australia, type locality. Also Gulf of Mexico west of Florida. 400-1400 fms.

(**Ancistrobasis**) **costulata** Watson, Jour. Linn. Soc. London, 14, p. 600, '89; Rept. Chall. Gastr., p. 103, pl. 7, f. 11, '86; Dall, Bull., M. C. Z., 18, p. 384, pl. 23, f. 4, 4a, '89; Pilsbry, Man., 11, p. 426, pl. 36, f. 3, '89; Dall, Bull. 37, U. S. N. M., p. 164, pl. 23, f. 4, 4a, '89.

Distribution.—Georgia to Culebra, W. I.

costulata var. **depressa** Dall, Bull. M. C. Zool. Harv. Coll., 18, p. 384, '89; Pilsbry, Man., 11, p. 428, pl. 6, f. 14, 15, '89; Dall, Bull. U. S. N. M., p. 164, pl. 23, f. 4, 4a, '89.

Distribution.—Yucatan Strait, 640 fms. Also Antillean.

Genus **UMBONIUM** Link

bairdi Dall, Bull. Mus. Comp. Zool., Harv. Coll., p. 359, pl. 21, f. 6, 6a, '89; Pilsbry, Man., 11, p. 457, pl. 60, f. 5, 6, 1889.

Distribution.—Yucatan Strait, 640 fms. Also Florida reefs, 200 fms.

Genus **COCHLIOLEPIS** Stimpson

parasitica Stimpson, Proc. Bost. Soc. Nat. Hist., 6, p. 308, and fig., '58; Dall, Bull. M. C. Z., 18, p. 360, '89; Bull. 37, U. S. N. M., p. 162, '89; Tr. W. I. Sci., 3, p. 418, '92.

Distribution.—Charleston Harbor, S. Car. to Florida Keys and Tampa, West Florida. At Charleston this species lives under the scales of a large annelid. Pliocene, Caloosahatchie beds, Fla., rare.

striata Stimpson, MS.; Dall, Bull. M. C. Z., 18, p. 360, 1889. Bull. 37, U. S. N. M., p. 162, '89; Tr. Wagner Inst. Sci., 3, p. 419, pl. 23, f. 16, 17, '92; Jacot, Jour. Mitchell Soc., p. 138, Feb., 1921.

Distribution.—Beaufort, N. Car. (Jacot); Egmont Key, near Tampa, West Fla. (Colonel Jewett). Upper Miocene of North Carolina.

Genus **ADEORBIS** S. V. Wood

adamsi Fischer, Journ. de Conch., p. 173, pl. 10, f. 11, 1875; Dall, Pr. U. S. N. M., 6, p. 335, '83; Bush, Tr. Conn. Acad. Sci., 10, p. 104, 1899-1900.

Distribution.—Cited by Dr. Dall from Cedar Keys, West Fla.

Genus **VITRINELLA** C. B. Adams

mooreana Vanatta, Proc. Acad. Nat. Sci. Phila., 55, p. 758, 1903.

Distribution.—Crooked Island, Calhoun Co., Fla.

hemphilli Vanatta, Proc. Acad. Nat. Sci. Phila., p. 24, pl. 2, f. 1, 3, 1913.

Distribution.—Cedar Keys, Florida.

interrupta C. B. Adams, Monograph of *Vitrinella*, p. 6, 1850; Journ. de Conch., 6, p. 176,; Dall, Bull. 37, U. S. N. M., p. 166, 1889; Bush, Tr. Conn. Acad. Sci., 10, pp. 106, 107, '99-1900.

Distribution.—Tampa, West Fla., in shallow water, to Jamaica.

Genus **CIRCULUS** Jeffreys

liratus Verrill, Tr. Conn. Acad. Sci., 5, p. 529, '82, (*Omalaxis*); 6, p. 452, '85, (*Skenea*); Bush, *op. cit.*, 6, p. 464, '85; Bull. M. C. Z., 23, p. 240, pl. 1, 11, 12, '93; Tr. Conn. Acad. Sci., 10, p. 125, pl. 23, f. 7, 12-12b, '99-1900.

Adeorbis supranitidus var. *orbignyi* Dall, Bull. M. C. Z., 18, p. 278, '89; (in part); Tr. W. I. S., 3, p. 344, '92; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 120, 1915; Not *orbignyi* Fischer, Journ. de Conch., 6, pp. 173, 286, '57.

Distribution.—New England to Hatteras and West Florida. Lower Miocene, Chipola beds, West Fla.

Note.—The true *Circulus orbignyi* Fisher is West Indian and very minute, only $1\frac{1}{2}$ mm. in diameter, while *liratus* is $2\frac{1}{2}$ mm. in diameter.

trilix Bush, Rept. U. S. Fish Com., for 1883, p. 584, 1885, (as *Skenea*); Tr. Conn. Acad. Sci., 10, p. 127, pl. 22, f. 6, 10, 10a, 12, a-g, pl. 23, f. 10, 15, 1899-1900.

Adeorbis supranitidus Dall, Bull. M. C. Z., 18, p. 278, '89; Bull. 37, U. S. N. M., p. 150, pl. 41, f. 7, 7a, '89, (in part). Not *supranitidus* Wood, Cat. 1842, Crag. Moll., p. 137, pl. 15, f. 5a-b, 1848.

Distribution.—Massachusetts to Hatteras and to Cedar Keys, West Fla. 15-25 fms. Pleistocene, Knapp's No. 2 well, Terrebonne Parish, La., at 1519-1632 feet.

Genus **LISSOSPIRA** Bush

proxima Tryon, Manual Conch., 10, p. 98, pl. 33, f. 4, 1888, (*Cyclostrema*); Bush, Tr. Conn. Acad. Sci., 10, p. 130, f. 4, pl. 22, f. 3, 1899-1900.

rugulosum Verrill, Tr. Conn. Acad., 5, p. 533, '82, (*Cyclostrema*). Not of G. O. Sars, 1878.

affine Verrill, Tr. Conn. Acad., 6, p. 199, pl. 32, f. 15, '84, (as *Cyclostrema*). Not of Jeffreys, 1883.

trochoides Dall, Bull. M. C. Z., 18, p. 393, 1889; Dall, Bull. 37, U. S. N. M., p. 166, '89, (as *Cyclostrema*). Not *trochoides* (Jeffreys) Sars which is a variety of *petterseni* Friele.

Distribution.—Lat. 41° N., Lon. 65° W. to Lat. 35° N., Lon. 74° W. (Bush); West Florida (Dall).

Genus **CHORISTELLA** Bush

pompholyx Dall, Bull. M. C. Z., 18, p. 394, pl. 28, f. 9, '89, (as *Cyclostrema*); Bull. 37, U. S. N. M., p. 166, pl. 28, f. 9, '89; Bush, Tr. Conn. Acad. Sci., 10, pp. 99, 140, 1899-1900.

Distribution.—Blake Station 2, Gulf of Mexico, type locality. Also Fernandina, Florida, to Cuba. 294-805 fms.

Note.—This species is referred tentatively to *Choristella* as Miss Bush suggested that it might prove referable to this genus.

Genus **EPICYNIA** Moerch

multicarinata Stimpson, MS., Dall, Bull. M. C. Z., 18, pp. 273, 392, '89; Bull. 37, U. S. N. M., p. 166, '89, (as *Vitrinella*); Bush, Tr. Conn. Acad., 10, p. 112, '99-1900.

Distribution.—Hatteras to West Florida. Pliocene, Caloosahatchie beds, Fla. Upper Miocene, Duplin Co., N. Car. Perhaps identical with the *Architectonica gemma* of Holmes listed by Hilgard from the Lake Borgne borings, La.

Genus **ETHALIA** A. Adams

The following species are of doubtful generic position. They were excluded from *Ethalia* by Pilsbry (Man. Conch., 11, p. 457) when he restricted that genus and gave *Ethalia guamensis* Quoy and Gaimard, as the genotype. Dr. Dall has referred me to Miss Bush's revision (Trans. Conn. Acad. Sci., 10, p. 116, '89-1900). Apparently she tentatively retains these three species in *Ethalia*.

suppressa Dall, Bull. Mus. Comp. Zool., 18, p. 362, '89; Bull. 37, U. S. N. M., p. 160, '89.

Distribution.—Goodland Point, West Florida. Collected by Hemphill.

reclusa Dall, Bull. Mus. Comp. Zool., 18, p. 361, pl. 28, f. 7, 8, '89; Bull. 37, U. S. N. M., p. 160, '89.

Distribution.—Yucatan Strait, 640 fms. North Carolina coast, 12-65 fms.

solida Dall, Bull. M. C. Z., Harv. Coll., 18, pl. 28, f. 3, 5, '89; Bull. 37, U. S. N. M., p. 160, pl. 28, f. 3, 5, '89.

Distribution.—West Florida and Cuba, 310 fms.

Genus **TEINOSTOMA** A. Adams

cryptospira Verrill, Trans. Connecticut Acad. Sci. and Arts., 6, p. 241, '84; (as *Rotella*); Dall, Bull. 37, U. S. N. M., p. 160, '89; Bush, Tr. Conn. Acad. Sci., 10, p. 118, f. 1, 2, 1899-1900; Dall, Tr. Wagner Inst. Sci., 3, p. 414, '92.

Distribution.—Hatteras to Florida. Gulf coast at Crooked Island, Calhoun Co., Fla. 30-150 fms. Pleistocene of North Creek, Fla. Miss Bush regards this species as a true *Teinostoma*.

Genus **NERITA** (Linnæus) Lamarck

pelorenta Linnæus, Syst. Nat., 10, p. 778, 1758; Reeve, Conch. Icon., 9, pl. 2, f. 8, 8b, 1855; Tryon, Man., 10, p. 24, pl. 4, f. 75-77, 1888; Dall, Bull. 37, U. S. N. M., p. 166, 1889; Dall and Simpson, Bull. U. S. Fish. Com., 1, p. 445, 1901.

Distribution.—Florida, St. Vincent and Texas region of the Gulf of Mexico.

tessellata Gmelin, Syst. Nat., p. 3685, 1792; Reeve, Conch. Icon., 9, pl. 9, f. 43, 43a, 1855; Tryon, Man., 10, p. 24, pl.

4, f. 71, '88; Dall, Bull. 37, U. S. N. M., p. 166, '89; Dall, and Simpson, Bull. U. S. Fish Com., 1, p. 446, 1901,

Distribution.—East Florida to Colon. Gulf coast, West Florida and Texas, shallow water.

versicolor Lamarck, Anim. s. Vert., 6, pt. 2, p. 193, 1822; Reeve, Conch. Icon., 9, pl. 12, f. 56, a-d, 1855; Dall, Bull. 37, U. S. N. M., p. 166, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 446, 1901.

Distribution.—Florida Keys and West Florida to Colon, the Antilles and Bermuda.

Genus **NERITINA** Lamarck

reclivata Say, Jour. Acad. Nat. Sci. Phila., 2, p. 257, 1822, (as *Theodoxus*); Reeve, Conch. Icon., f. 34 a-b, '55; Dall, Pr. U. S. N. M., 8, p. 259, pl. 17, f. 8, '85; Tryon, Man., 10, p. 39, pl. 12, f. 25-27, '88; Singley, Fourth Ann. Rept. Texas Geol. Surv., p. 342, 1892; Mitchell, List. Texas Shells, p. 7.

Distribution.—St. Augustine to Martinique. Gulf coast: Mouth of Manatee River, Tampa, Cedar Keys and St. Mark's, Fla., Point au Fer and Chandeleurs, La.; Port Lavaca and Rockport, Tex. Pleistocene, Knapp's No. 3 well, Terrebonne Parish, La. from 1-700 feet.

Note.—The variety *palmar* Dall is found at Palma Sola, Texas.

virginea Linnæus, Syst. Nat., ed. X, p. 778, 1758, (as *Nerita*); Reeve, Conch. Icon., 9, pl. 21, f. 92, a-d, 1855; Dall, Pr. U. S. N. M., 8, p. 259, '85; Tryon, Man., 10, p. 39, pl. 12, f. 31-35, 37-43; Dall, Bull. 37, U. S. N. M., p. 168, 1889; Singley, Fourth Ann. Rept. Geol. Surv. Texas, p. 342, 1892.

Distribution.—Florida to Brazil. Gulf coast: Various localities of West Florida; Corpus Christi and Rockport, Tex.

pupa Linnæus, Syst. Nat., ed. X, p. 378, 1758; Tryon, Man., 10, p. 42, pl. 14, f. 72, 73, '88; Dall, Bull. 37, U. S. N. M., p. 168, '89.

Distribution.—Charlotte Harbor, West Florida to Jamaica. Shallow water.

viridis Linnæus, Syst. Nat., ed. X, p. 778, 1758; Tryon, Man., 10, p. 54, pl. 18, f. 88, 1888; Dall, Bull. 37, U. S. N. M., p. 168, '89.

Distribution.—Florida Keys to Barbados, W. I. Also Texas region of the Gulf of Mexico.

showalteri Lea, Pr. Acad. Nat. Sci. Phila., p. 55, 1861; Tryon, Man., 10, p. 53, pl. 17, f. 81, 82, '88; Dall, Bull. 37, U. S. N. M., p. 168, '89.

Distribution.—Alabama and West Florida, Fluvial.

sparsilineata Dall, Proc, U. S. N. M., 46, p. 236, 1914.

Neritina, sp. indet., Aldrich, Nautilus, 24, pt. 11, p. 131, No. 7, 1911: 26, pl. 1, f. 3, 4, 1912.

Distribution.—Upper Miocene or Pliocene. Well near Alexandria, La., at 49 feet; Pine Prairie La., well at 1540 ft. and well $\frac{1}{2}$ mile S. E. of Pine Prairie depot, in dump. Also Satilla River, Ga., and Burkeville, Texas. One of the most widespread and characteristic species of the brackish water formation, extending from Georgia through Louisiana to Texas.

Genus **PLEUROTOMARIA** Sowerby

(*Petrotrochus*) **quoyana** Fischer and Bernardi, Journ. de Conch., 5, p. 165, pl. 5, f. 1-3, 1856; Dall, Bull. M. C. Z., 9, p. 78, '81; Crosse, Journ. de Conch., 22, p. 14, '82; Dall, Bull. M. C. Z., 18, p. 397, pl. 29, f. 1, pl. 31, f. 1, 1b, 1c, pl. 37, f. 5, '89; Bull. 37, U. S. N. M., p. 168 same pls. and figs., 1889.

Distribution.—Yucatan, near Arrowsmith Bank, at 130 fms.

Also off Barbados, 73 fms., and Marie-Galante Island, near Guadeloupe.

Genus **FISSURELLA** Bruguiere

(**Cremides**) **barbadensis** Gmelin, Syst. Nat., p. 3729, 1792, (as *Patella*); Dall, Bull. 37, U. S. N. M., p. 170, '89; Pilsbry, Man., 12, p. 164, pl. 37, f. 40-49, '90; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 448, 1901.

Genus **LUCAPINA** Gray

suffusa Reeve, Conch. Icon., in *errata*, 1851, (as *Fissurella*); Dall, Trans, Wagner Inst. Sci., 3, p. 424, pl. 23, f. 22, '92.

hondurasensis Reeve, Conch. Icon., f. 70, 1851.

cancellata Sowerby, in part, Thesaurus Conch., p. 200, pl. 8, (243) f. 187 only, '62; Dall, Bull. 37, U. S. N. M., p. 170, '89; Pilsbry, Man., 12, p. 200, pl. 63, f. 1-3, pl. 37, f. 58, '90; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 449, 1901.

Distribution.—Marco, West Florida to Vera Cruz, Mexico. Also Antilles and South America to the Island of Fernando Noronha, Brazil.

Note.—As there has been some question whether the name *suffusa* Reeve or *cancellata* Sowerby should be applied to this species, Dr. Dall's opinion was asked. He replied, June, 1921, "I find nothing to change in the synonymy of *L. suffusa* as given in the Wagner memoir."

adpersa Philippi, Abbild. u. Beschr., 2, p. 34, pl. 1, f. 3, 1845; (as *Fissurella*); Pilsbry, Man., 12, p. 199, pl. 62, f. 6, 7, '90; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 449, 1901.

fasciata Pfeiffer. *Fissurellidea fasciata* (Pfeiffer) Dall, Bull. U. S. N. M., p. 172, '89.

Distribution.—West Florida region of the Gulf of Mexico to Cuba and St. Croix, W. I.

Genus **FISSURIDEA** Swainson

alternata Say, Jour. Acad. Nat. Sci. Phila., 2. p. 281, 1822, (as *Fissurella*); Pilsbry, Man., 12, p. 211; pl. 37, f. 50-53, pl. 61, f. 24, 25, '90; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 450, 1901.

Distribution.—Chesapeake Bay through the Antilles to Trinidad Isl. and Fernando Noronha, Brazil. Gulf coast: Cedar Keys, Fla.; Galveston, Corpus Christi, Texas; Vera Cruz and Progreso, Mexico. Also south of Nicaragua. 1-50 fms. Pliocene of South Carolina.

cayenensis Lamarck, Anim. s. Vert., 6, pt. 2, p. 12, 1822; Reeve, Conch. Icon., f. '82; Dall, Bull. 37, U. S. N. M., p. 170, '89; Pilsbry, Man., 12, p. 212, pl. 37, f. above 60, 1890.

Distribution.—Cedar Keys, Fla. to St. Lucia, W. I. Placed by Pilsbry in synonymy of *alternata*, but is more elongated and with straighter sides than that species. Perhaps to be classed as a variety.

Genus **PUNCTURELLA** Lowe

trifolium Dall, Bull. M. C. Z., 9, p. 76, '81; 18, p. 403, pl. 26, f. 8, 8b, '89; Bull. 37, U. S. M. N., p. 168, pl. 26, f. 8, 8b, 1889.

Distribution.—Yucatan Strait, 640 fms.

watsoni Dall, Bull. M. C. Z., 18, p. 403, '89; Bull. 37, U. S. N. M., p. 168, '89.

Distribution.—Off Yucatan, at 200 fms. Also off Cuba and Barbados.

circularis Dall, Bull. M. C. Z., 9, p. 75, '81; 18, p. 403, pl. 26, f. 7, 7b, '89; Bull. 37, M. S. N. M., p. 168, pl. 26, f. 7, 7b, '89.

Distribution.—Florida Strait and the West Indies.

(**Fissurisepta**) **triangulata** Dall, Bull. M. C. Z., 18, p. 404, '89;
Bull. U. S. N. M., p. 170, '89.

rostrata Watson, Chall. Gastr., p. 48, pl. 4, f. 10, '85. Not of
Seguenza.

Distribution.—Yucatan coast, 200 fms. Also off Fernan-
dina, Fla., and Culebra Isl., W. I.

(**Cranopsis**) **asturiana** Fischer, Journ. de Conch., 30, p. 51, 1882,
(as *Rimula*); Watson, Chall. Gastr., p. 45, pl. 4, f. 4, '85;
Dall, Bull. M. C. Z., 18, p. 404, '89.

Distribution.—Yucatan Strait, 640 fms. Also off Havana,
Martinique, and Cape Florida, and in the Gulf of Gascony
at 2018 fms.

Genu **EMARGINULA** Lamarck

(**Rimula**) **frenulata** Dall, Bull. M. C. Z., 18, p. 406, pl. 28, f. 4,
'89; Bull. 37, U. S. N. M., p. 170, pl. 28, f. 4, '89.

Distribution.—West Florida, Florida Keys and Hatteras, 6-
52 fms.

(**Emarginula**) **compressa** Cantraine, Bull. Acad. Roy. Bruxelles,
9, p. 2. 1835; Jeffreys, Pr. Zool. Soc., p. 679, '83; Dall, Bull.
M. C. Z., 18, p. 404, '89.

Distribution.—Yucatan Strait, 640 fms. Also off Havana,
Barbados, and coast of Portugal. Tertiary of Sicily.

CLASS AMPHINEURA

ORDER POLYPLACOPHORA

Genus **LEPIDOPLEURUS** Risso

pergranatus Dall, Bull. M. C. Z., 18, p. 414, '89, (as *Leptochiton*); Bull. 37, U. S. N. M., p. 172, '89; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 451, pl. 58, f. 1, a-c, 1901.

Distribution.—Gulf of Mexico, western Florida region, Porto Rico and Dominica, 114-1181 fms.

Genus **CHAETOPLEURA** Shuttleworth

apiculata Say, Amer. Conch., app., pt. 7, 1830, (as *Chiton*); Dall, Bull. 37, U. S. N. M., p. 172, pl. 51, f. 10, 1889; Pilsbry, Man., 14, p. 35, pl. 13, f. 75-79, 1892; Johnson, Occ. Pa. Bost. Soc. N. H., 7, p. 8, 1915.

Distribution.—Massachusetts to Haiti, Gulf coast, various localities of northwestern Florida and Chandeleurs, La. 0-30 fms.

Genus **ISCHNOCHITON** Gray

limaciformis Sowerby, Proc. Zool. Soc., p. 26, '32, (as *Chiton*); Dall, Bull. M. C. Z., 18, p. 415, '89; Pilsbry, Man., 14, p. 57, pl. 16, f. 9-16, '92; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 452, 1901.

Distribution.—Gulf of Mexico, southeastern part, Lat. 24° N., Lon. 83° W., at 37 fms. Also Key West and the Antilles, Central America and Peru. Under stones at low water.

purpurascens C. B. Adams, Proc. Bost. Soc. Nat. Hist., p. 9, 1845, (as *Chiton*); Dall, Bull. 37, U. S. N. M., p. 172, '89; Pilsbry, Man., 14, p. 58, pl. 17, f. 23, 24, 1892; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 452, 1901.

Distribution.—Texas region of the Gulf of Mexico, Florida Keys, Jamaica and Porto Rico.

papillosus C. B. Adams, Proc. Bost. Soc. Nat. Hist., p. 9, 1845; Dall, Bull. 37, U. S. N. M., p. 172, '89; Pilsbry, Man., 14, p. 114, pl. 21, f. 40, 41, 1892; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 453, 1901.

Distribution.—Tampa, West Florida, to St. Thomas, W. I.

Genus **CHITON** Linnæus

tuberculatus Linnæus, Syst. Nat., ed. X, p. 667, 1758; Pilsbry, Man., 14, p. 153, pl. 33, f. 58-60, 1892; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 453, 1901.

Distribution.—Texas and Florida to Trinidad and Bermuda.

marmoratus Gmelin, Syst. Nat., p. 3205, 1792; Dall, Bull. 37, U. S. N. M., p. 172, '89; Pilsbry, Man., 14, p. 158, pl. 34, f. 72-76, 1892; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 454, 1901.

Distribution.—Texas, and the Antilles to Barbados. South to Cartagena, Colombia.

Genus **ACANTHOPLEURA** Guilding

granulata Gmelin, Syst. Nat., p. 3205, 1792, (as *Chiton*); Pilsbry, Man., 14, p. 227, pl. 50, 1892; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 454, 1901.

picea Gmelin, Dall, Bull. 37, U. S. N. M., p. 174, '89.

Distribution.—Charlotte Harbor, West Fla., to Trinidad, Bermuda and Bahamas.

Genus **ACANTHOCHITES** Risso

spiculosus Reeve, Conch. Icon., pl. 9, f. 47, 1847; Dall, Bull. 37, U. S. N. M., p. 174, '89; Pilsbry, Man., 15, p. 22, pl. 13, f. 60-62, 1893; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 455, 1901.

Distribution.—Cedar Keys, West Florida, to Barbados.

pygmaeus Pilsbry, Tryon's Manual Conchology, 15, p. 23, pl 13, f. 58, 59, 1893.

Distribution.—Cedar Keys and Key West, Fla.

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CLASS CEPHALOPODA

ORDER DIBRANCHIATA

Genus **ARGONAUTA** Linnæus

argo var. **americana** Dall, Bull. 37, U. S. N. M., pp. 174, 200, pl. 43, f. 1 a-b, pl. 64, f. 142b, pl. 67, f. 1-3, 1889; Johnson, Occ. Pa. Bost. Soc. Nat. Hist., 7, p. 223, 1915.

Distribution.—Massachusetts north to 43° N. Lat., and south to the Antilles and doubtfully to Brazil. Gulf of Mexico, West Florida region.

Note.—The typical *Argonauta argo* Linnæus, Syst. Nat., ed. X, p. 708, 1758, is Mediterranean. It has two or three times as many radial folds and carinal nodules as the variety *americana*.

Genus **SPIRULA** Lamarck

australis Lamarck, Anim. s. Vert. 7, p. 600, 1822; Encycl. Méth., pl. 465, f. 5, a,b; Dall, Science, n. s., 3, pp. 243-245, 1896; Dall and Simpson, Bull. U. S. Fish Com., 1, p. 359, pl. 56, f. 4, 1901.

spirula Linnæus, in part.

peroni (Lamarck) Dall, Bull. 37, U. S. N. M., p. 174, pl. 68, f. 4, '89.

Distribution.—Pelagic. West Indies and the Gulf of Mexico, shells being washed ashore along West Florida coast and at Cameron, La., Galveston and Corpus Christi, Texas. A specimen with all the soft parts was also taken from the

mouth of a fish trawled by the Albatross between the Mississippi delta and Cedar Keys, at 324 fms. The *Spirula* had just been seized alive by the fish and the soft parts, previously imperfectly known, were complete. See Science, 1896.

There are several forms of *Spirula*. *S. spirula* of Linnæus was a composite, according to Dr. Dall, and since the species cannot be differentiated by the shells alone no one can tell exactly which species Linnæus had although he gave America as the habitat. Huxley and Pelseneer (Challenger Rept.) fixed the name *australis* Lamarck on the Antillean species.

Note.—*Argonauta* and *Spirula* are the only shell-bearing Cephalopods reported from the Gulf of Mexico. Of other forms, the Brazilian, *Loligo brevis* Blainville is cited from Cameron and elsewhere on the Louisiana coast, and *L. hemiptera* Howell from Florida and the Gulf of Mexico.

